Accounting Review

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The Accounting Review

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REVENUE ACT OF 1954—SIGNIFICANT ACCOUNTING CHANGES

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ALTHOUGH the general rule for accounting methods under the Internal Revenue Code of 1954, as set forth in section 446, is substantially the same as the general rule under the Internal Revenue Code of 1939, there are a number of specific types of accounting problems which are singled out for special treatment in the new Code. For the most part, these special provisions represent an effort on the part of the lawmakers to bring tax accounting into closer accord with generally accepted accounting principles.

TYPES OF DIVERGENCES IN 1939 CODE

Under the various revenue acts prior to 1939 and under the Internal Revenue Code of 1939, there were many differences between the accounting for certain transactions for tax purposes and for commercial purposes. Some of the major differences could be explained on the grounds of public policy, as in the case of the peculiar treatment of capital gains and losses and in the allowance of percentage depletion, to name only two. Others could be said to result from the necessity of determining "taxable" net income rather than "business" net income, as in the case of the allowances for expenses of a purely personal nature and the credits (now to be "deductions") for personal exemptions. Because of the nature of the underlying reasons for these differences, the accounting principles involved have been sacrificed to a higher authority, and no strong case can be made for the assertion that accounting principles should take precedence over legislative rules established to implement such policy.

There has been, however, another large area of accounting for tax purposes where the rules imposed upon taxpayers differed materially from generally accepted accounting principles for other reasons. This latter group consists largely of differences in the timing of deductions and the reporting of income for tax purposes. Commenting upon divergences of this type, a special committee of the American Institute of Accountants made the following observation:

> "The effect of many of the divergences of the tax rules from generally accepted accounting principles is to improperly advance the reporting of income and to improperly defer the deduction of expenses and losses. This produces utterly distorted and erroneous results. If, in financial statements, companies reported as their income the amounts they are required to report for income tax purposes, the figures would often be subject to sharp criticism, if not lead to more serious consequences."[1]

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[1] *Report and Recommendations with respect to Divergences between Tax Accounting and Generally Accepted Accounting Principles* (New York: American Institute of Accountants, 1953), page 4.

The effects of advancing income and deferring deductions stem largely from aggressive administration of the tax laws and the failure of the courts to distinguish properly between income and receipts, on the one hand, and between expenses and expenditures on the other. Naturally, the Treasury looks upon receipt as an event which produces an ability to pay taxes, and looks with understandable suspicion upon claimed deductions which are not evidenced by an expenditure or at least by a completely binding obligation. The results have been that receipts or the unqualified right to receive cash have been interpreted as income, in spite of the fact that substantial earning activity might remain to be performed and substantial costs remain to be incurred. Items which have been construed as income under these rules include advance rentals, sales of tickets, receipts of fees for service contracts, and receipts for membership fees, to mention only a few.

As concerns deductions, the courts have developed the rule that all of the events necessary to fix the amount and the fact of the taxpayer's liability must have occurred. Although the court in *Harrold v. Com'r* (192 F. (2d) 1002 (C.A.-4, 1951)) permitted the estimated cost of restoring strip-mined coal lands, taxpayers have generally been denied deductions for such "post-revenue" costs until the amount of the liability has been established by an expenditure or a liability expressed in monetary terms. Types of costs which have been disallowed as deductions in the period of the related revenues include estimated returns, refunds, shipping and handling costs, and service and guarantee costs.

The 1954 Code makes considerable progress toward achieving conformity with generally accepted accounting principles in these two areas, namely, the treatment of unearned revenue and estimated expenses.

PREPAID INCOME (SECTION 452)

Under the heading "Prepaid Income" (a revealing misnomer), section 452 sets forth the rules under which receipts in advance of earning activities will be treated. It is important to note that the new provisions apply only to receipts after December 31, 1953, and for taxable years which begin after December 31, 1953. Under this rule, fiscal year taxpayers whose years began before December 31, 1953 must report some 1954 receipts under the old rules. The Code also makes the treatment of prepaid income elective but provides that the election must apply to all prepaid income items of the taxpayer, with the exception of receipts which will become earned during the twelve-month period subsequent to the receipt. These latter items may, at the choice of the taxpayer, be included in the income of the year of receipt.

The Code distinguishes three types of "prepaid income":

1. Prepaid income to be earned before the start of the sixth tax year following the year of receipt.
2. Prepaid income to be earned over an indefinite time.
3. Prepaid income to be earned over a definite period of time extending beyond the beginning of the sixth tax year following the year of receipt.

Prepaid income of the first category ("short period") is to be allocated over the period earned in accordance with the method of accounting of the taxpayer, and need not be prorated equally. The report of the Senate Finance Committee cites the case of a five-year lease under which the rent for the fifth year is received at the signing of the lease.[2] The lessor may include the advance rent as income when received

[2] 83d Congress, 2d Session, Senate Report No. 1622, page 301.

or may defer it to the fifth year if that would be proper under the method of accounting employed.

The second category of prepaid items is intended to apply to receipts from coupons, tickets, tokens, etc., where the period of liability to deliver goods or perform services is indefinite, even though the duration of the liability might be estimated with reasonable accuracy based upon the experience of the taxpayer or others in similar situations. To the extent that receipts from such items may become earned during the taxable year of receipt and the five succeeding taxable years, the accounting method followed by the taxpayer will be allowed for tax purposes. However, where the experience of the taxpayer indicates that some of the receipts will not become earned until after this period, the Code provides a rigid rule that that portion be treated as earned ratably during the period of receipt and the succeeding five years. As an example, the Finance Committee report cites the case of a taxpayer who receives $1,000 from the sale of repair service coupons. Experience indicates that $700 of coupons will be redeemed during the year of sale and the following five years, and that $300 of coupons will be redeemed thereafter. Therefore, each year after the receipt there will be included in income not only the coupons actually redeemed during that period, but also one-sixth ($50) of the coupons which will not ordinarily be redeemed before the end of the fifth year following the year of receipt. The report states in positive terms that it is not contemplated that prepaid income of this sort will be deferred beyond the end of such year under any circumstances.

For the third category of prepaid income there is provided the general rule that requires the inclusion in income of one-sixth of the receipt in the year of receipt and each of the succeeding five tax years. Under this rule, the receipt in advance of $12,000 rent for a twelve-year lease would require $2,000 to be included in income for each of six years. An escape from this general rule is provided, however, where the taxpayer is able to secure the consent of the Secretary of the Treasury or his delegate (presumably the Commissioner of Internal Revenue) to an alternative procedure, but with such consent there may be imposed whatever restrictions might be necessary to protect the revenue of the Treasury. It might become common, for example, for the Commissioner to require a bond to be posted before he will allow income to be deferred beyond the period permitted under the general rule.

One final restriction is imposed upon the taxpayer in the interest of protecting tax revenues. Should the taxpayer die or otherwise cease to exist, or if the liability to perform services, deliver goods, or permit the use of goods ceases, any amount of a prior receipt not yet taken into income shall be reported as income in the year such event occurs. Special rules are provided to permit successor corporations (in tax-free organizations or reorganizations) to continue on the same basis as the predecessor.

While these rules for the treatment of prepaid income are necessarily complex and do not correspond precisely to generally accepted accounting practice, there is no question but that greater justice will be done taxpayers. No longer will it be possible for an entire industry to claim that its high rate of failures could be traced largely to the inequitable tax rule relating to advance receipts, as was done by the television service contract industry in hearings before the Ways and Means Committee.

ESTIMATED EXPENSES (SECTION 462)

The counterpart of the liberalized treatment of prepaid income appears in section 462 under the heading "Reserves for Estimated Expenses, Etc." This section estab-

lishes the general rule that "in computing taxable income for the taxable year there shall be taken into account (in the discretion of the Secretary or his delegate) a reasonable addition to each reserve for estimated expenses. . . ." The Code makes the treatment of estimated expenses elective, and provides that the election will apply to all estimated expenses of the taxpayer. The election is available, however, only with respect to estimated expenses associated with income reported in a taxable year beginning after December 31, 1953. Thus, a taxpayer who had made sales in 1953 would not be allowed to estimate (and establish a reserve for) estimated post-sale costs applicable to such sales. These costs would become deductible only when they are actually incurred or paid.

The effect of this restriction will be to bunch deductions in the years following the election to provide for estimated expenses. For 1954, for example, taxpayers will be permitted to deduct the total estimated expenses in connection with 1954 income *plus* the actual expenses paid or incurred in 1954 with respect to income reported in prior years. Thus, the transition may provide a mild windfall for taxpayers with significant amounts of estimated expenses.

The mechanical procedure envisaged by the Code is quite simple. At the end of the first tax year to which the election applies, the taxpayer will establish both a reserve for estimated expenses and a charge against income for the amount experience indicates is proper. As expenses are actually paid or incurred, the reserve will be charged, and the balance must be reviewed annually to determine the inadequacy or excessiveness of the reserve. Where an adjustment is necessary, the adjustment will be made to the taxable income of the ajdustment year rather than to the year in which the error was made.

While the election to provide for estimated expenses is made available only to accrual-basis taxpayers, it is interesting to note that the Code imposes no requirement that the taxpayer keep his books and prepare published financial statements in a manner consistent with the treatment applied for tax purposes.

In order to lend meaning to the concept "reasonable" as applied to estimated expenses, the Secretary (of the Treasury) or his delegate is given wide discretion to draft regulations, and must be convinced that the amounts involved can be estimated with a fair degree of accuracy. In addition, the Senate Finance Committee report states explicitly that "the reserve method is not to be allowed for costs and expenses of a contingent or contest nature and as to which there is no reasonable certainty of their amount. Reserves for general undetermined contingencies, indefinite possible future losses, expenses and losses not reasonably related to the taxable year, or for specific expenses and losses that are being contested or are in litigation, cannot ordinarily be estimated with reasonable accuracy and are not to be the basis for additions to reserves under this section."[8]

What effect the provision relating to estimated expenses will have outside the tax area is subject to speculation. While it has long been generally accepted accounting procedure to provide for such expenses, many times provision was not made because the aggregate amount was not material in a particular case. Now that estimated expenses are deductible for tax purposes (whether reflected in the accounts or not), accountants can expect considerable pressure from clients interested in securing the greatest immediate tax benefit permitted by the Code. In computing deductions for tax purposes, entirely different standards of materiality are introduced.

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[8] *Ibid.*, page 307.

DEPRECIATION (SECTION 167)

Although technically not a part of the "accounting provisions" (Subchapter E), the depreciation provisions of the Code embody several changes of interest from the accounting point of view. Perhaps the most important of these provisions has to do with the declining balance method of depreciation and the "sum of the years-digits" method.

Under the declining balance method, the taxpayer will be permitted to write off depreciable properties at twice the rate appropriate for straight line depreciation. The Ways and Means Committee Report defines the depreciation rate as simply the reciprocal of the years of life.[4] Thus, a property with an estimated life of ten years could be depreciated at twenty per cent of the undepreciated balance each year.

It is interesting to note that the use of declining balance depreciation ignores completely the factor of salvage value. For a property with a cost of $1,000 and an estimated life of five years, the declining method produces a depreciation deduction of $922.24 during the five-year life. This is true whether the estimated residual or salvage value might be zero or $500, or any other amount. Quite obviously, declining balance depreciation will produce highly desirable tax results where a property has a high salvage value relative to its original cost and where unit depreciation records are maintained. In such a situation, the disposition of the property other than as scrap (but not on a trade-in) will almost necessarily produce capital gain. The tax on such gain will represent only a nominal penalty in view of the full deduction of the dollars of depreciation.

One of the objections to declining balance depreciation (which was permitted under the 1939 Code at one and one-half times the straight line rate) is the fact that a relatively large undepreciated "tail" may remain at the end of the estimated life of the property. If the amount remaining undepreciated would be approximately equal to net salvage value, no damage would result. Where salvage value is low or non-existent, the inability to deduct the "tail" until the disposition of the property operates as a real deterrent to the use of declining balance depreciation.

This objection has been overcome to a large extent in the new Code by granting almost automatic permission to the taxpayer to change to straight line depreciation at any time during the life of depreciable property. Since the taxpayer apparently may use different depreciation methods for different assets or group of assets, it may become common practice to switch from declining balance to straight line depreciation at or beyond the half-way mark during the life of an asset. Since the switch would involve the estimation of a salvage value, the appropriate time for change would depend upon the amount of salvage value. If the salvage were high, the change might even be less advantageous than a continuation under declining balance.

Some of the results possible with the use of declining balance for tax purposes are quite unusual. Actually, a simple model can be constructed to show that a high-bracket taxpayer can "make money" simply by owing short-lived depreciable properties. Suppose a taxpayer, otherwise in the ninety per cent bracket, purchases a new automobile for use in his business for $3,000. A not unusual life for such properties is three years, which means that over this period depreciation of $2,889 ($2,000+$667+$22) may be claimed. However, in the ninety per cent bracket, the depreciation produces tax reductions of $2,600.10 (.9×$2,889). If, at the end of the third year, the taxpayer sells the car

[4] 83d Congress, 2d Session, House Report No. 1337, page A48.

for $1,000—a not unrealistic amount—there will be a gain of $889, on which a tax of twenty-five per cent, or $222.25 must be paid. So the taxpayer actually receives $3,600.10 ($2,600.10+$1,000) in tax reductions and cash in return for $3,222.25 ($3,000+$222.25) in cash and additional taxes, and is ahead by $377.85 even before considering the income from operating the asset. Whether this result would be achieved by the application of generally accepted accounting principles is certainly open to question.

In addition to the declining balance method, the Code permits the "sum of the years-digits" method. This is the method mentioned in almost all texts but conspicuous by its absence from use in practice. Like the declining balance method, this method gives large deductions during the early years but, unlike declining balance, requires that salvage value be eliminated in determining the depreciation base. It is difficult to envisage widespread use of the sum of the years-digits method except where salvage value is relatively low and taxpayers wish to avoid the arithmetic of the declining balance method.

As in other areas, the liberalized depreciation provisions of the new Code are subject to restrictions. Both the declining balance method and the sum of the years-digits method are limited to properties acquired after December 31, 1953, the original use of which commences with the taxpayer, and the estimated life of which is three years or more. This latter qualification avoids the result of permitting the immediate write off of a two-year property under the declining balance method. The limitations requiring the property to be *new* property acquired after December 31, 1953, makes the liberalization completely prospective and prevents traffic in used properties merely to qualify assets as acquired after December 31, 1953. In preventing such traffic, however, it seems that much legitimate trade in used properties will be unjustly penalized, as there will now be a tax premium on new properties.

These three areas, namely, prepaid income, estimated expenses, and depreciation, represent the most important accounting changes in the new Code, at least in terms of the numbers of taxpayers affected. Nevertheless, there are various other specific tax accounting changes which may be of great importance in specific cases. The more significant of these are described below.

RESEARCH AND EXPERIMENTAL EXPENDITURES (SECTION 174)

Under the 1939 Code, there was a great deal of uncertainty and confusion regarding the treatment of expenditures for research and development. The general rule was that such expenditures were fully and currently deductible if they represented ordinary and necessary expenses to the particular taxpayer, but would be required to be capitalized where specific expenditures resulted in the acquisition of an asset with a reasonably determinate life. As commonly administered, this general rule permitted taxpayers who maintained regular research facilities and activities to deduct the costs of such operations in the same manner as other operational costs. Where research activity was sporadic, however, the taxpayer was generally required to capitalize all costs until an asset emerged, or until the project was abandoned. Because taxpayers frequently could show neither abandonment nor a definitely amortizable asset, there was often no effective provision authorizing deductions.

The new Code establishes fairly precise rules to permit deduction of research and experimental expense. The general rule permits the taxpayer to treat all such expenses as deductions in the year incurred. As an alternative, however, the taxpayer may elect to capitalize all such expenditures and claim deductions for amortization. The amortization must be over a

period of not less than sixty months. Although the Code is unclear, the Finance Committee Report indicates that a shorter period may be used where the property has a determinable useful life shorter than sixty months.[5]

ORGANIZATIONAL EXPENDITURES (SECTION 248)

Because no specific provision was included in the 1939 Code, and because corporate life is generally regarded as perpetual, it has previously been impossible to deduct corporate organizational costs except upon corporate liquidation or other termination. In order to make the tax rule conform more closely to accounting practice,[6] the new Code specifically permits the elective amortization of organization costs over a period of not less than sixty months. Organization costs are defined as those incident to the creation of the corporation, otherwise required to be capitalized, which would be amortizable if the corporation had a definite, limited life.

While this liberalization will permit a tax treatment more consistent with accounting practice, it is interesting to note that similar types of costs involved in corporate reorganizations and recapitalizations are denied deduction, even though accounting practice does not ordinarily distinguish between such costs and original organization costs. Furthermore, the deduction of organization costs applies only to expenditure subsequent to the enactment of the new Code, so that all costs prior to that date must remain capitalized until the termination of the corporation's existence.

AMORTIZABLE BOND PREMIUM (SECTION 171)

Under the 1939 Code, premiums paid on fully taxable bonds held as investments were amortizable (as ordinary deductions) over the period prior to maturity or any earlier call date, and this procedure was fully compatible with accounting practice.[7] A very serious abuse has resulted from this provision, however, which necessitated changes. The abuse occurred when bonds were issued at a premium and made subject to immediate call at face value. Quite obviously, this would be possible only if prospective purchasers were convinced that the issuer had no intention of exercising the early-call option, and such was frequently the case. For tax purposes, the existence of the call date, even though evidently regarded as purely nominal by all parties, permitted the rapid (perhaps immediate) deduction of the premium and a corresponding reduction in the basis of the bond to the investor. After six months, the bond could be sold at an apparent gain which would be taxed as a long-term capital gain. The procedure could be repeated every six months.

The new Code inserts a rather ill-fitting plug in the loophole by denying the amortization of premium over the period prior to call date where the call date is not more than three years from the date of issue. Otherwise, the same rules prevail as under the 1939 Code. Quite probably, many bonds will now be issued with optional call dates shortly after three years following issue.

How accounting practice treats this problem is difficult to determine, but it is to be hoped that the substance of such arrangements rather than the pure form dictates the proper accounting treatment.

REAL ESTATE TAXES (SECTIONS 164 AND 461)

The accounting for real estate taxes, particularly their accrual, has been fraught with uncertainties, both for tax purposes and for general accounting purposes. Ac-

[5] 83d Congress, 2d Session, Senate Report No. 1622, page 215.

[6] *Montgomery's Auditing* (Seventh Edition, New York: The Ronald Press Co., 1949), page 390.

[7] *Ibid.*, page 129.

counting Research Bulletin No. 43 cites eight periods over which property taxes are accrued in practice, and concludes that the most acceptable basis for accrual is over the fiscal year of the taxing authority for which the taxes are levied.[8]

For tax purposes, property taxes have been held to accrue in a lump sum on the date the tax becomes a lien on the property or when personal liability arises (*Magruder v. Supplee*, 316 U. S. 394 (1942)). Although this rule has been fully effective as between a purchaser and a seller of real property, many taxpayers have been permitted to accrue property taxes ratably over various periods of time without objection by the Treasury. This practice is now expressly permitted by election under section 461 (c). Special transitional rules are provided to prevent double deduction or denial of deduction during the year of change. Substantially the same result is provided in the case of sale of real property to effect an allocation of tax between cash basis sellers and buyers, but certain restrictions are imposed to insure that the same tax will not be deducted as such by both parties.

INSTALLMENT METHOD (SECTION 453)

Two changes have been made in the installment method. Under the 1939 Code, the installment method could be employed only if there was an "initial payment" during the tax year of the sale. This requirement has been removed with considerable justice. Certainly there is no generally accepted accounting principle prohibiting installment reporting merely because of the absence of such payment, and the requirement for tax purposes proved merely a trap for the unwary.

One significant source of irritation in the rules surrounding the use of the installment basis has been the double taxation resulting when a change is made from the accrual to the installment method. The new Code provides some relief by allowing an adjustment for a portion of the taxes for prior years or the current year (whichever is lower) on the duplicated income. The portion of the tax attributable to the duplicated income is computed in the ratio of the gross profit (included previously) to the gross income of the previous years or the current year.

52–53—WEEK YEAR (SECTION 44)

One additional change, which may prove self-justifying, is the permission for corporate taxpayers to use a fiscal year of 52 or 53 weeks, ending always on the same day. In addition to making the method permissive, the new Code provides that such "years" shall be considered to end on the last day of the month nearest the end of the period for the purpose of applying rate changes and other changes in law.

Although relatively few corporations currently use a 52–53-week year, the method may have been avoided because of its inapplicability for tax purposes and the necessity for making detail adjustments in preparing tax returns.[9] Now that the method is permissive for tax purposes, it may enjoy greater popularity in practice.

GENERAL COMMENTS

It cannot be denied that most of the changes described above bring tax accounting into closer agreement with general accounting practice. Some new problems will be created, however, as in the case of declining balance depreciation at

[8] *Accounting Research Bulletin No. 43, Restatement and Revision of Accounting Research Bulletins* (New York: American Institute of Accountants, 1953), pages 82–84.

[9] See *Accounting Trends and Techniques in Published Corporate Annual Reports* (Seventh Edition, New York: American Institute of Accountants, 1953), page 295. In 600 corporate reports for 1953 studied, only 22 reported use of the 52–53-week year (unpublished data).

twice the straight line rate. Many old problems remain, and accountants will undoubtedly still be concerned about such problems as trade-ins, amortization of good will, lower-of-cost-or-market for Lifo inventories, foreclosures, reorganization costs, and many others. On balance, there probably has been improvement, but differences between taxable net income and income determined in accordance with generally accepted accounting principles (exclusive of differences which occur regularly over comparatively long periods of time) will still arise and require appropriate mention in published financial statements.

THE ENTITY CONCEPT IN ACCOUNTING

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Of necessity accounting is practiced within a framework of basic assumptions. These condition in various manner the resulting product. Holding primary rank in the framework of assumptions is the view that the business undertaking is an entity. As commonly set forth the entity view holds the business enterprise to be an "institution in its own right, separate and distinct from the parties who furnish the funds. . ."[1] which make possible its operation. Strongest support for the *institution in its own right* assumption is held to exist in the case of the corporation to which the state grants the right to hold legal title to property, which the state taxes as an individual, and which holds the legal right to sue or be sued. The accounting concept of entity does not wholly rest upon the existence of legal entity, however. The entity point of view is held to be equally applicable to sole proprietorships and partnerships which lack the characteristic of legal entity. In the case of consolidated statements, also, the entity whose status and whose success or failure are depicted is an economic entity whose scope often encompasses numerous separate legal entities.

It is clear, therefore, that the accounting and legal concepts of entity are not synonymous. *For accounting purposes it is the entity of experience which is of importance.* So viewed the corporation, the sole proprietorship, the partnership, and parent and subsidiary companies each in its own right constitutes an entity of experience the achievements and status of which need to be accounted for. In each case funds are committed to a profit earning endeavor. These need to be followed through the vagaries of their asset investment and subsequent reconversion and the resultant gain or loss effects measured and reported. The fact that the corporation is a legal entity, while of supporting significance, is neither controlling nor material. Accounting would in all probability proceed in much the same manner as at present even though the corporation lacked the characteristic of legal entity. In fact, in the case of parent and subsidiary companies the lines of legal entity contribute to accounting problems and confusion; clearer vision of the experience entity is obtained by ignoring the divisional lines which the laws establish. Substitution of the experience entity concept for the concept of legal entity supports in realistic manner the commonly accepted practice of preparing consolidated statements. It is primarily on this basis that they are acceptable.[2] Although much emphasis in accounting literature is placed upon the concept of legal entity, more specific analysis of the whole of accounting practice confirms the fact that it is the experience entity which is basic. The entity of experience rather than the legal entity is the factor which unifies the accounting treatment accorded the sole proprietorship, the partnership, the corporation, and parent-subsidiary company relationships.

Historically, the corporation has been developed primarily as a form of business organization which facilitates the combination, accumulation, and management of investment funds to both social and per-

[1] W. A. Paton and A. C. Littleton, *An Introduction To Corporate Accounting Standards*, p. 8.

[2] See Sidney I. Simon. "Consolidated Statements and the Law," The Accounting Review, October, 1953, pp. 505–516.

sonal advantage. The basic purpose of the corporate business organization does not differ from the basic purpose motivating the organization and operation of business sole proprietorships and partnerships: In each case the individuals providing the basic investment funds seek to obtain profit through the medium of rendering social services. To encourage the investment of funds, however, certain privileges are granted those who provide basic corporate funds which are not generally granted to investors who place their funds in the sole proprietorship and partnership forms of organization. In return the law restricts to some extent the freedom of action which these investors enjoy, to the end that society may be the better protected against possible abuses to which the corporate form of organization peculiarly lends itself. In the one case the investors' liability for indebtedness incurred by the corporation is limited to the amount of their investment; in the other case the freedom of investment withdrawal is surrounded with limitations. The life of the corporate organization is not subject to termination by the withdrawal or death of individual investors and the organization as such is given the legal right to hold property in its own name and to sue or be sued in courts of law. While it is commonly held that in granting the indicated privileges the corporate organization is made a separate legal entity, it is clear that the privileges granted are granted to the investors who provide the corporation's basic funds. In no other sense do they have meaning. In effect the law encourages corporate investors to devote their investment funds to social service by informing them that their un- or otherwise invested funds will not be jeopardized by the failure of the corporate project to which the invested funds are committed, that they and the project will not be jeopardized by the death or withdrawal therefrom of other investors, that the obligations and responsibilities associated with the possession of title to property will not fall upon them as separate individuals and that suit for claimed corporate wrong doings will not be filed against them as separate individuals. The administration of the investment, the obligations and responsibilities associated with the holding of title to property, and the duties of offence and defense in the case of legal suit are recognized by the law as being duly transferred to appointed agents.

The corporate form of business organization has been a most vital element in modern economic development. It is difficult to see how this economic development could have been accomplished without it. The corporate form of business organization constitutes a most efficient medium of capital accumulation and capital usage. In this latter sense its benefits represent those largely derived from the extension of the practice of specialization.

Considerable tendency exists in current accounting to relate basic theory to the presumption that the corporation as an entity conducts its affairs for its own ends. Basic accounting problems are solved in a manner more or less consistent therewith. From the point of view of economics, however, the core principals in free enterprise activity are the individual entrepreneurs who use the various forms of business organization for personal ends. It is they who keep free enterprise society on its feet by assuming the ultimate responsibility for business conduct. Their desire for profit is the motivating force underlying the formation, the continued operation, and the expansion and contraction of business. Free enterprise will remain free only as long as its entrepreneurs function efficiently and they will function efficiently only as long as profits, or the prospect of profits, possess the appearance of adequacy. "Entrepreneural" profit, or the

prospect of such profit, is therefore the key factor in the efficient functioning of free enterprise society. The primary goal of accounting is the measurement of this profit. By so doing it indicates the efficiency with which the respective free enterprise endeavors function and provides the best possible base for estimating prospective future profits. Since the locus of the entrepreneural function rests in personal individuals rather than in impersonal business entity it would appear that accounting theory would be more realistically hinged to economic reality if the corporation were assumed to be an agency organization. From the economic point of view the solution of many accounting problems would in turn appear to be more realistic.

The large proportion of accounting would proceed in similar manner regardless of whether the legal entity or the agency view of the corporation be accepted. For most purposes it is important only that the business experience of the corporation be viewed as an experience entity and immaterial whether the entity of this experience be viewed as that of the corporation per se or as that of the corporation as representative of its basic investors. In the main the accounting for all transactions between the corporation and parties other than its basic investors proceeds in similar manner regardless of the view held. Only those transactions affecting both the corporation and its basic investors would need to be interpreted and treated differently.

THE NATURE OF DIVIDENDS

Viewed as a legal entity income earned by the corporate endeavor is the property of the corporation, per se. To the extent that such income is retained in the business it in effect becomes the ***corporation's proprietary equity in itself***. To consider it otherwise, as when it is treated as part of the book value of the stockholders' equity, is to imply acceptance of the agency or representative point of view. Curiously, accountants who hold the legal entity view do not hesitate to compute the book value of stock, thus ascribing distributive ownership to that to which they denied distributive ownership when the retained earnings increments were designated as income. Curiously, too, those who hold the legal entity point of view customarily exhibit retained income in the balance sheet as part of the stockholders' equity rather than as separate corporate equity. Presumably some sort of transformation takes place between income and retained earnings which converts the former from its legal entity status to agency status in the case of the latter.

Paton and Littleton state specifically that "Emphasis on the entity point of view. . . requires the treatment of business earnings as the income of the enterprise itself until such time as transfer to the individual participants has been effected by dividend declaration."[3] They appear to straddle the problem of transformation mentioned above by contending that "Between the moment when profit has been earned by the enterprise and the moment when profit-assets are distributed to investors, those who contributed capital have a claim against the assets according to their contracts. It is this claim and not profit itself that is expressed by the credit to some proprietary account."[4] Upon analysis this statement appears to be either avoidance of the transformation problem or to be a mere truism. In neither case is the required transformation actually accomplished. From one point of view, since Paton and Littleton hold that profits and losses are changes in assets[5] to hold that the increased stockholders' claim is not

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[3] Paton, W. A. and Littleton, A. C., *An Introduction to Corporate Accounting Standards*, p. 8.
[4] Ibid., p. 8.
[5] Ibid., p. 9.

profit is merely to hold that debits are not credits, or that assets are not equities, and has no more significance than just that. By virtue of contract the stockholders' claims nevertheless increase, and to come into possession of increased claims through the process of investment is to become better off, and to become better off through the medium of business operations is to acquire income. No one denies interest credited to a bank depositor's account the status of income simply because it represents merely a claim against cash to which the bank holds title. Nor is it customary to deny that income accrues to the holders of corporate bonds before assets are distributed to them merely because their accrual of income represents only a claim against assets to which the corporation holds title. From the entity point of view, in all three cases—that of the corporate stockholder, the bank depositor, and the corporate bondholder—the increased claim in each case rests upon contract. Is it to be held that increased contract rights constitute income in two of the cases, while it is of no significance in this respect in the other? It would appear that to be consistent Paton and Littleton would need to deny that income exists in all these cases. If it is their intention to deny that the income of the corporation constitutes stockholders' income, as seems to be the case, to be consistent they would need to hold that the increased equity resulting from corporate profit acquired assets is corporate equity and not stockholders' equity. Or is consistency of theory of no importance in accounting thinking? Holding corporate income to be entity income while at the same time including retained earnings in the base from which the book value of each share of stock is computed and of exhibiting the increased equity in the balance sheet as part of the stockholders' equity would appear to imply a negative answer.

Whether dividends represent a withdrawal of capital or are to be interpreted as income to the stockholder depends upon the assumed status of corporate income. From the entity point of view the following would seem to constitute the most reasonable line of argument and the most reasonable conclusion:

1. Income earned by the corporation is entity income and not the income of the stockholder participants.
2. Any resulting retained earnings constitute part of the corporate entity's equity in itself.
3. A distribution of assets which reduces the corporate entity's equity in itself (a cash dividend) or the transferring of part of the corporate entity's equity in itself to the stockholders (a stock dividend) transfers to the stockholders something which was not theirs previously and therefore constitutes income to the stockholders.

From this point of view both the cash dividend and the stock dividend are income to recipient stockholders. The arguments so frequently advanced to the effect that stock dividends are not income are in the main beside the point.[6] It is frequently held that the stockholders are no better off after they receive a stock dividend than they were before they received it. This implies that the equity capitalized was their equity. This can be true (assuming that retained earnings are capitalized), however, only if the income from which the equity was derived was their income. To hold that income earned by the corporation is not the stockholders' income and to contend that the resulting retained earnings are their equity is to take the position as stated earlier, that some mystical trans-

[6] See the interesting article on this point in the August, 1953, issue of *The Journal of Accountancy* by E. B. Wilcox, "Accounting for Stock Dividends: A Dissent from Current Recommended Practice," pp. 176–181.

formation takes place between income and retained earnings which converts non-stockholder income into the stockholders' equity. That any such mystical transformation actually takes place is seriously to be doubted. If the view that corporate income is entity income and not stockholder income be accepted, the following conclusions would appear to be inevitable: (1) that the resulting retained earnings are entity equity; and (2) that the giving to the stockholders of specific rights thereto through the medium of a stock dividend constitutes income to the stockholders.

Considerable point is sometimes made of the presumed difficulty of determining the amount at which a stock dividend should be taken up as income by the stockholders receiving the distributed stock. The difficulty originates out of the fact that the book value and the market value of the distributed stock often differ. It may be argued that either value constitutes a satisfactory basis. Presumably the difference between the market and book values of the stock results from the fact that the "economic value" of the corporation and the total of its book values are different amounts. While the economic value of the corporation is a "true" value, differences between it and book value are not customarily recorded in the records. Were the economic values recorded on the books it is highly probable that no problem of the type here raised would exist. It is thus clear that the basic issue involved is the proper basis of the recipient stockholder's accounting. It may be argued, with some logic, that once the stockholder becomes an integral part of the corporation his accounting thereafter should coincide with the accounting of the corporation and that the corporate book value of the stock dividend received should constitute the basis of income recognition. This view of the case, however, is not consistent with the view that the corporation and the stockholder are separate entities and that the stock dividend transfers to the stockholder corporate entity equity to which he previously did not have title. From the separate entity point of view the basis of accounting for the corporation's experiences is not of material influence in deciding what should be the proper basis of accounting for the stockholder. The stockholder as a separate entity may therefore properly use the market basis of the dividend stock received as the basis of income recognition.

It is sometimes contended that the stockholder is in possession of the market value of the dividend stock prior to the receipt of a stock dividend. While this is true, it, also, is an immaterial consideration. To be in possession of a market value and at the same time to experience proper justification for booking it are in accounting thinking different considerations. As a general matter the accountant is opposed to the booking of appreciation (or market depreciation) until it is crystallized by specific event. It is merely suggested here that the receipt of a stock dividend whereby claim to corporate entity equity is specificially acquired from the corporation is such an occasion.

It is also held by some that in acquiring stock in a corporation the stockholder often purchases the retained earnings which the stock dividend capitalizes. This is true, of course, only when the capitalized retained earnings have been accumulated prior to the stockholder's acquisition of his stock equity. It, too, from the point of view of the entity theory, is an irrelevant argument. It is equally applicable to cash dividends but is not generally advanced in respect thereto. Usually individuals who hold the entity theory of the corporation also contend that those who acquire stock in a corporation on the market subsequent to the date of its original issue are to be considered as stepping

into the shoes of those who were the original holders of the stock acquired. On the basis of this assumption no retained earnings which are capitalized are to be assumed as having been earned prior to the date at which any stockholder acquires his equity in the corporation. Nor is it relevant that the value of the stock at the dividend date may be lower than the price at which the subsequent purchaser acquired his equity.

The accountant sometimes appears to be seriously influenced by the possibility that stock dividends would be taxed as income were they granted to be such.[7] It is submitted, however, that the questions of whether an item is income and of whether, if it is, it should be taxed as such are separate questions. The latter is dependent wholly upon social policy and should exercise no influence in determining the decision to be reached respecting the former. It is clear that under present circumstances, and under the application of the entity theory, taxation of the stockholder's participation in income earned by the corporation through the sale of stock at a price higher than he paid for it, this higher price being influenced to considerable extent by the fact that the corporation retained out of income the portion of its earnings capitalized, is on a capital gains basis. This treatment is questionable when it is realized that capital accumulated out of an individual taxpayer's personal earnings is taxed at full rate.

The Agency Point of View. From the agency or an aggregation of investors point of view the earnings of the enterprise, as Paton and Littleton state,[8] constitute earnings to the stockholders at the moment of their realization. Earnings retained in the business out of such income are thus part of the stockholders' capital investment. No dividend—cash or stock—is therefore to be interpreted as income: Cash dividends are merely a withdrawal of capital from the business; stock dividends are merely formal evidence that previous income which was capitalized is converted to stock form. Taxpayers on the accrual basis may justly be taxed on their prorata shares of the corporation's income as of the period in which the corporation's income is earned. Taxpayers on the cash basis may properly be taxed as of the date when their prorata shares of the corporation's income are reduced to a cash basis, or may even be taxed on a constructive receipt basis.[9] The expediency of taxing prorata shares of the income earned through the corporation and the manner in which these shares should be taxed are, as stated above, separate problems to be settled in terms of desirable social policy. The solution accorded these problems, however, has no bearing on the problem of whether the income of the corporation is prorata income of its shareholders.

It is to be noted that as a general matter the accountant treats cash dividends in a manner consistent with the separate entity theory. The treatment which is generally accorded stock dividends, on the other hand, is more in line with the agency or aggregation of individuals point of view.

General Statement. The problem which the proper interpretation of corporate income and the proper handling of dividends, especially stock dividends, presents to the accountant is an expression of the gap which exists between legal assumption and economic reality, and which is created by the law's ascribing to the corporation the characteristic of separateness. Whenever

[7] "Stock Dividends and Concepts of Income," George O. May, *The Journal of Accountancy*, October, 1953, pp. 427–431.

[8] Ibid., p. 8.

[9] As a practical matter it may be desirable to tax corporate earnings while they are still in the hands of the corporation and to allow stockholders proportionate tax credits upon dividends which they report as taxable income. Note the treatment accorded dividends in this respect in Great Britain.

fiction and reality come to grips, as they do when the corporation is involved in transactions with its own shareholders, the gap between the two may be solved in only one of two ways: (1) by piercing the veil of the fiction; or (2) by continuing to treat the problem in a manner consistent with the assumed fiction. In the latter case it should be recognized that the solution itself is a fiction and adjustment made therefor in all cases in which it appears to be necessary. Presumably the market, an economic expression, does just that. There no argument exists as to whether the income earned by the corporation is entity or shareholder income, nor as to the nature of dividends—cash or stock.

It was stated earlier that in a free enterprise society it is the entrepreneur who generates economic activity, that he is motivated by the prospect of profit, and that it should be the accountant's basic goal to indicate the entrepreneur's success in this respect. Regardless of the characteristics which the law gives to the corporate form of organization, it remains an organization of individuals. Basically, it is the common stockholders who constitute the entrepreneurs in the case of the corporation and who use it for the purpose of obtaining profit. The final decisions are theirs; they bear the ultimate risk. The characteristics given to the corporation by the law are designed to make more attractive the prospect of earning profit. To this end the law endeavors to reduce the "entrepreneural" risk involved, to reduce the nuisance value of the activity, and to facilitate the making of decisions. From the economic point of view, nevertheless, the corporation remains an agency organization. Accounting comes closest to reality and to being of economic service when it recognizes this fact, when it measures "entrepreneural" success or failure, and when it imputes profit or loss to the "entrepreneural" actors. In so doing it is most consistent with the requirements of free enterprise society. In passing it might be noted that the accountant comes closest to putting this point of view into practice when the pro rata holding or parent company share of the earnings of subsidiaries is recorded on the holding or parent company's books as its income. Taxation of parent, subsidiary companies on a consolidated basis is also in line therewith.

One other problem needs to be mentioned before closing this portion of the discussion. In the large number of cases the current stockholders in any corporation will have acquired their share holdings on the market at prices differing considerably from the stock's book value. The stock's book value reflects historically consummated transactions; the market value of the stock will presumably reflect the current, or replacement value of the corporate assets. Since under the accounting procedure profits are computed on the basis of the recorded book values, it follows that reported profit does not reflect the stockholders' investment values. Income as commonly measured is therefore usually not correctly measured from the stockholders' point of view. The question thus naturally arises as to whether customarily accountingly measured profit is properly to be viewed as stockholder income even from the agency point of view. An affirmative attitude on this question can be taken only on the basis of the usual accounting assumption that new stockholders always step into the shoes of original stockholders. From this point of view the book values are their values. More realistically, however, only the placing of accounting on an economic basis can actually solve this problem. The accountant's problem here is one of convention, not of reality.

TAXATION OF THE CORPORATION AND ITS SHAREHOLDERS

The problem of the double taxation of the corporation and its shareholders is

given prominent consideration in the current evaluation of present income tax laws. Here, too, the problem of the viewpoint to be taken of the corporation-shareholder relationship is of importance. From the entity point of view, the corporation and its stockholders being separate persons, it would appear that income taxes paid by the corporation and by a corporation's stockholders are taxes paid by different persons. Hence, they do not constitute a double burden upon either. It appears to be clear that since the income of the corporation is entity income and not income of the corporation's shareholders taxes thereon are not a tax upon shareholder income. Further, since the dividends received by the shareholders constitute income to them and not to the corporation, taxes levied against the income of the shareholders are not taxes upon corporate income. From the entity point of view, therefore, double taxation does not exist. The fact that dividends received by the shareholders are paid out of the income of the corporation is immaterial. It is a commonplace that amounts which private individuals pay out of their income to other individuals are taxable to both. From the entity point of view arguments to the effect that the total corporate-shareholder income is subjected to too great burden are not soundly supported when based upon the theory of double taxation. The argument for the mitigation of the total corporate-shareholder tax burden would be much more consistently advanced were it held that dividends paid to stockholders represent payments for capital services received and as such should be deducted from corporate income before taxes are computed thereon. Dividends would then be treated as payment for capital services received in the same manner as is interest.

From the agency or aggregation of individuals point of view, however, since corporate income is shareholder income, levying taxes thereon as well as levying taxes on the distribution of this income is double taxation. The same individuals are taxed twice on the same income. It would appear that individuals who hold the entity point of view and who also contend that corporate income is subject to double taxation either consciously or unconsciously shift their basis of thinking in dealing with corporate income and the taxation thereof. It is interesting to note that in the case of taxes on corporations improperly accumulating surplus, the surtax on personal holding companies, and the tax on regulated investment companies, consent distributions are a step in the direction of the application of the agency or aggregation of individuals point of view.

Close analysis of the problem of double taxation of corporate-shareholder income raises serious question as to whether the asserted double taxation of that income is in the long run as general as is frequently claimed. In an unpublished paper delivered at the Business Problems School of the Chicago Association of Commerce and the Illinois Society of Certified Public Accountants (1950) Professor Willard J. Graham set forth a so-called "iron law" of profit to the effect that profit, in the long run, can neither fall below the minimum nor rise above the maximum necessary to attract capital into given risk situations. While there are likely to be short run exceptions, supply and demand may be expected to affect prices in such manner that "normal" profits will prevail. Since it must be believed that corporate entrepreneurs, the shareholders, will be influenced by the profits remaining after taxes are deducted, the iron law of profits supports the further belief that in the long run the profits which remain after taxes are deducted will tend to be normal profits. If this be the case, income taxes collected from the corporation will represent amounts collected from others (in the form of higher prices or lower wages than would otherwise prevail) and

the corporation would appear to a considerable extent to be merely a collection agency which channels funds collected from others to the government through the medium of the income tax route. To the extent that this is the case double taxation, even from the agency or aggregation of individuals point of view, does not exist.

TREATMENT OF INTEREST

Among those who hold the entity point of view are individuals who maintain that profit is properly measured prior to the deduction of the amount of any explicit interest obligations to creditors. Interest, like dividends, is treated as a distribution of corporate income. Rather than being consistent with the entity point of view this treatment of interest appears to represent the application of a sort of quasi agency or aggregation of individuals point of view in which the creditors are treated as part of the basic group for which the corporation is to be regarded as earning income. Instead of interest being a cost which is paid for a service, the corporation is viewed as an organizational agency earning income for the creditors, as well as for the stockholders. That this represents the proper relationship between the creditors and the corporation is difficult to admit. Further inclusion within the aggregate group of the wage earners, as is occasionally done, makes wages also a distribution of income instead of a cost and the corporation an income earning organization for shareholders, creditors, and wage earners alike. To endeavor to exclude the wage earners from the aggregate group on the basis that they provide no capital is to argue that capital is more important than labor for purposes of the income earning activity. Developments in this direction, however, appear, as stated, to be contrary to the entity point of view. From the standpoint of the latter the entity is a person separate from all others: shareholders, creditors, and wage earners alike. There is no reason why it should be conceived as acquiring the services of any of these groups without cost. Contrary to justifying the treatment of dividends, interest, and wages as distributions of income, the entity point of view would seem to require the treatment of all three as costs.

Accepting the free enterprise point of view that it is the entrepreneur who operates business for the purpose of obtaining profit and the further views that the common stockholders occupy the "entrepreneural" position in the corporation and that the corporation is an organizational medium through which the stockholding entrepreneurs strive to achieve this objective, interest, like wages, is the cost of a hired service. Whether the stockholders could provide all the capital which the corporation needs is immaterial. *They do not.* Money is hired and for this a price is paid. The price paid is the cost of a service received. While it may be desirable to exhibit this cost for statistical purposes as other than an operating cost, from the agency, "entrepreneural" point of view it is nevertheless a cost.

It is sometimes held that the proper view to be taken of the interest treatment problem is the managerial view. Interest should not be treated as a cost from the manager's point of view, so it is held, since the manager's purposes would be as well served if the capital at his disposal were provided by the shareholders, in which case there would be no interest cost to charge against revenue. Two points are at issue in this argument: (1) While it should be the accounting purpose to provide the manager with all possible accounting information and analyses which may assist him perform his function more efficiently, and while for management purposes this information may properly be presented from the manager's point of

view, management, too, is hired service for which a price is paid. To hold that the basic accounting statements should be presented from the manager's point of view and that costs should be classified according to his view is to transfer accounting's basic allegiance from employer to employed, from the entrepreneur to his agents, and is thus at variance with the thesis that it is the entrepreneur who is the hub of the free enterprise economic wheel. (2) If business is properly to be viewed from the management point of view there is no reason to conclude that management should be provided with capital free of charge. Capital is an effective instrument contributing mightily to any success that management may achieve. For this the manager should be charged, otherwise the managerial accomplishment will not be isolated. Often it is largely the difference in the capital available which makes one manager appear to be more effective than another. To judge the managerial accomplishment properly it needs to be isolated.

Invariably when the view is expressed that consistent with the agency or aggregation of individuals interpretation of the corporation interest is properly to be treated as a cost, question is raised as to the proper treatment to be accorded preferred stock dividends. The preferred stockholders occupy a "hybrid" position, a resultant of the cross breeding of bonds and common stock. On the theory that the common stockholders occupy the entrepreneurship position in the corporation, preferred stock, like bonds, represents the hiring of capital service. Consistent therewith preferred stock dividends are best treated as a cost.

THE GOING CONCERN CONCEPT

Generally it is held that the entity for which accounting is to be conducted is to be regarded as a going concern. The interpretation customarily applied thereto is to the effect that the going concern concept justifies the use in the records and in the statements of incurred costs rather than liquidation values. As Paton states, "The going concern rather than the seriously embarrassed or insolvent business is the normal case. Accordingly, in developing accounting principles and procedures the accountant must keep this in mind. It would certainly be unreasonable to set up the conditions of insolvency as a background in determining present values, effective liabilities, etc."[10] "Liquidation," as Paton and Littleton state, "is not the normal expectation; continuity is."[11] Hence, incurred costs rather than liquidation values constitute the basis for asset expression and for the charge against revenue. In some present-day thinking, however, the going concern concept is advanced to support the use of the base stock and LIFO methods of charging recently incurred goods costs against revenue and exhibiting more or less ancient costs of the inventory in the balance sheet, and of basing the depreciation charge upon the cost of replacement or of modifying the computation based upon cost through the application of corrective index numbers. Devine, for example, states that the defenders of the base-stock method in making allowance in the computation of profit for the replacement of units of stock sold carry the going concern concept to its logical conclusion,[12] and the Study Group on Business Income states that the principle of permanence supports and requires both the use of the LIFO method of inventory valuation and the basing of the depreciation charge upon currently existing price levels.[13] It is the thought that revenue must provide the means for replac-

[10] W. A. Paton, *Accounting Theory*, pp. 478–479.
[11] *Op. cit.*, p. 9.
[12] Carl Devine, *Inventory Valuation and Periodic Income*, p. 107.
[13] Income Study Group, *Changing Concepts of Business Income*, p. 60.

ing the physical items disposed of (or their equivalent), whether their replacement cost be higher or lower than the cost of the disposed of items, before there can be profit. The going concern cannot continue without continuous inventory stock and continuity of operating assets. Hence, the advocates of this more current interpretation of the going concern concept contend that revenue must maintain this state of affairs before a business can be held to have acquired income. While it is possible that the inflationary experience has played some part in bringing this viewpoint to the forefront, the problem thereby involved had best be treated directly.

Accounting is generally regarded as a money process in which the profit earning endeavor consists of a money to goods to money experience. The excess of the money recovered through the medium of sales over and above the money costs incurred is generally considered to be profit. The holders of the more current interpretation of the going concern concept, however, appear to have shifted to a goods to money to goods view of the business experience in which only the money remaining after the means of restoring the original asset position has been deducted from revenue is to be considered profit. It is obvious that if the cost of replacing the goods disposed of is greater than their actual incurred cost, and if this difference expresses increased economic value, the cost of improving the firm's value position is treated as a revenue cost rather than as additional investment. Both the asset and the proprietary positions will be expressed at lesser amounts than would be the case under the money to goods to money scheme. The result would appear to be the understatement of profits and the building up of secret reserves. Opposite results are obtained when the replacement cost of the goods disposed of is less than their actual incurred cost. Here, overstatement of profits and the watering of stock would appear to be the result.

From the point of view that the business venture is basically an experience entity, the going concern concept or assumption of permanence does not appear to be necessary. Costs need only to be accounted for in accordance with the intention governing their incurrence (or subsequently modified intention). Should the business fail to remain in existence sufficiently long to complete the originally held intent, any remaining costs would represent costs which need to be recovered through liquidation—forced or voluntary. Any difference between the amount received and the unamortized cost of the liquidated items would be recognized as a profit or loss from liquidation. Under this view costs of newly "to be" acquired or possible replacement assets exercise no influence in determining the profit realized through ordinary sales or through liquidation.

From the viewpoint of intent the costs of items on hand are properly to be exhibited as assets since they represent the costs of items which are to be disposed of in the future—either voluntarily or in liquidation—for the purpose of acquiring profit. The costs of items disposed of are properly treated as revenue or liquidation costs since upon disposal intent reaches the end of the road. Defining assets and revenue costs in terms of original intent possesses the merit of unifying the accounting treatment of long- and short-term endeavors. Activities based upon leaseholds in which the cost of fixed assets is amortized over a lease period less than their full potential service period and assets amortized for a period fixed by the limitation of depletable natural resources are accorded accounting treatment which rests upon the same basis as does the amortization of assets acquired with intent to extract the full service potential. In these situations the entity of the experience is

merely circumscribed by a circle of lesser radius.

CONCLUSION

Roland P. Soule states that "confusion sometimes results from a tendency to regard the position of a company as capable of being different from that of its common stockholders. In other words, the assumption may unconsciously be made that a company can lead a separate life and if it chooses—can benefit at the expense of its owners. From this point of view any earnings that are not disbursed to stockholders as dividends but are reinvested in the business cost the company nothing or, at most, the sacrifice of the small income that might otherwise be earned on some alternative investment in marketable securities."[14] Soule goes on to demonstrate that from the standpoint of the economic analysis of capital costs strict application of the entity theory results in erroneous conclusions respecting these costs. Studied analysis of corporate-stockholder relationships leads to a similar conclusion in the case of accounting thinking. The corporation is both a legal and economic organization. While in many cases legal purposes may best be served by treating the corporation as an entity separate and distinct from its stockholders, from the point of view of economics the corporation is an organizational form availed of by natural persons for the purpose of making a profit. For economic purposes sounder conclusions are generally to be made by so interpreting corporate-stockholder relationships. It seems clear that the economic market so interprets them. Corporate income, corporate dividends, and interest payments are best interpreted in a manner consistent therewith. While for different purposes it is desirable that items being analyzed be treated in a manner relative to the purpose at hand, published statements are best set forth from the "entrepreneural" point of view.

The active agents of free enterprise society are natural persons. Free enterprise society is conducted to accomplish their purposes. It is they who consume its products, who accomplish its savings, who exercise business initiative, and who direct its operations. Natural persons are both the ends and means of the free enterprise system. The entrepreneur, too, is a natural person. It is he who bears the ultimate risk and responsibility of business activities. His goal is profit. Accounting is therefore best geared to the requirements of free enterprise society when it is geared to the provision of that information which best helps the entrepreneur determine and direct his "entrepreneural" activities. It is best geared to the requirements of the free enterprise system, also, when its definitions and its treatment of costs and income are consistent therewith. Since in the corporation the common stockholders occupy the position of entrepreneurs, accounting is best adjusted when conducted to serve their purposes and related to their viewpoint.

[14] "Trends in the Cost of Capital," *Harvard Business Review*, March–April, 1953.

PREDICTING CPA EXAMINATION RESULTS

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CAN AN INDIVIDUAL predict whether he is likely to pass the CPA examination? Studies of the use of the Institute sponsored Orientation and Achievement Tests as a means of making such predictions have produced encouraging results. On the basis of these studies, which are of limited scope, it appears that reasonably accurate predictions can be made in many instances.

SIGNIFICANCE OF PREDICTIONS

There are many benefits which will accrue to the profession and to individuals if fairly accurate predictions can be made that a particular individual should be able to pass the CPA examination; that another individual is unlikely to pass; and that still another one has a slight chance to pass.

It would be helpful to the college senior, who may be debating whether he should or should not enter public accounting, to have a reasonable guide as to whether he has the potential ability to pass the examination when he reaches that stage in the profession. Such predictions would aid appreciably in guidance work, and would be of value to employers. Predictive devices might be used by state examining boards in various ways. Boards might be aided in their efforts to encourage potentially able men to continue preparation and to discourage those who are obviously not ready to take the examination as well as those who may never qualify. Predictive devices might aid considerably in reducing failures. They could be helpful to many boards in helping to satisfy candidates who do not understand why they do not pass.

Also, the fact that predictions of results on the examination can be made with considerable accuracy by using tests designed for other purposes may have considerable significance as evidence of the reliability of the CPA examination grades. Also, it may help to establish the examination's validity as a screening device. Undoubtedly there would be other significant uses of these relationships if it can be established that they do exist.

DESCRIPTION OF TESTS USED

The tests used in the studies were the College Level Orientation Test and the Level II Achievement Test. Both of these tests are of the objective type. The Orientation test is essentially a measure of intelligence slanted toward business situations. It provides two scores, one verbal and the other mathematical. These verbal and quantitative scores are reported separately and are also combined to produce a total score. The Level II test is a measure of accounting knowledge and ability at the level of the second semester college senior. Both tests are "wide range" in that they contain items of sufficient difficulty to permit their use up to the senior accountant or partner level. The Orientation test also is appropriate down to the college freshman level.

Each of these tests exists in several forms. Norms (average of performance) have been established for them at various levels of study and employment. The Orientation test requires 50 minutes, while

the Level II test has been prepared in 2-hour forms and in 4-hour forms. They cannot be self administered, and are controlled so that only college and approved examiners in firms and other agencies can give them.

MAY 1953 STUDY

The most significant study of the relationship between CPA grades and the objective tests was made with a group of CPA candidates in two western states. These two state boards cooperated by having some of their candidates at the May 1953 examination take the objective tests shortly after the CPA examination. After the CPA grades were released, the state boards provided the information which permitted identification of the candidates with their scores on the objective tests.

Unfortunately the number of candidates participating was smaller than was hoped for, so that results were obtained for only 32 candidates. However, considerable other information was obtained about the candidates by use of a questionnaire and it is believed that the study is adequate, along with some earlier studies, to justify reporting the results. For this study, Orientation Form A and Level II Form C (a 2-hour form) were used.

Ability of the Candidates

Were the candidates a representative sample? It is very unlikely that this small group of candidates was a reasonble sample or cross-section of all candidates. At least it is evident from the following that they were not a true cross-section of employed accountants because of the absence of enough examinees with high scores.

In this tabulation it is especially noticeable that the "intelligence" of this group of candidates as measured by the Orientation test averages considerably below that of the norm group of 908 accountants.

DISTRIBUTION OF SCORES OF 32 CANDIDATES

(Compared with scores of 908 employed accountants in public accounting firms for Orientation test and 1,136 public accountants for Level II test.)

	Number of Candidates Whose Scores Were in the			
	Highest 25%	*2nd 25%*	*3rd 25%*	*Lowest 25%*
Level II Achievement Test	6	11	7	8
Verbal Part of Orientation	2	10	10	10
Quantitative Part of Orientation	3	7	12	10
Total Orientation Test	2	7	14	9

Possibly of greater significance is the fact that the two examinees who were in the top quarter on the Orientation test were not in the top quarter on Level II. Therefore there was no one in the group that was in the top quarter on both tests.

Certain significant groupings on both tests show the following:

	Number
Top quarter on both	0
Top on one and 2nd on other	3
Second on both	3
Third quarter on both	4
Third on one and bottom on other	3
Bottom quarter on both	5

Scores for there maining 14 candidates were in different quarters for the two tests, some being in the second in one and third in the other, etc. The above groups include the extremes and therefore warrant analysis.

Comparative Results

How did the candidates in the different groups on the Objective tests do on the CPA examination? While there were no really "top" individuals included in the sample, there are appreciable differences in the various groups which might be reflected in CPA examination results. The tabulation presented at the top of the next page shows comparative performance.

It would not be safe to draw a general conclusion from such a small sample, but on the basis of it, persons ranking above the 50th percentile passed in a number of subjects while those ranking below the

Group	Number of CPA Papers		Average CPA Grade in			
	Written	Passed	Auditing	Law	Theory	Practice
1st in one and 2nd on other	12	8	67	76	63	75
2nd on both	10	5	65	69	63	72
3rd on both	14	0	56	59	51	57
3rd in one and 4th on other	9	0	51	62	41	46
4th on both	17	0	48	45	40	41

50th percentile passed no subjects. Of additional significance is the decreasing average grade received as we move down the table.

The preceding leaves unanalyzed a substantial number of candidates whose scores fell in the middle area, or whose two scores were more than one quartile apart. A question arises as to whether a significant analysis can be made of these candidates. The following is a partial analysis which does not seem to have much significance other than for the observation that those whose average position was in the 2nd quartile had 50% passes, those whose average position was in between the 2nd and 3rd had 21% passes and the 2 candidates in the third group position had no passes.

No.	Quarter Rank in		No. of CPA Papers	
	Level II	Orientation	Written	Passed
2	1st	3rd	8	4
2	1st	4th	7	2
5	2nd	3rd	14	2
3	3rd	2nd	12	3
2	2nd	4th	6	0

It should be noted that some of the candidates in the lower areas on the two tests previously have passed some subjects on the CPA examination even though they did not pass any of the May 1953 examination. Therefore, the results of this study probably are more favorable than the results would be for a larger number of candidates or than the results over a large number of examinations. More data are needed for a "probability" table, and these results must be considered as only tentative.

In this sample, the Orientation total scores were not well spread. Also, there are two separable parts of the test. Therefore it seemed desirable to study the results of Level II, Orientation-Verbal, and Orientation-Quantitative separately. In the previous cases percentiles were used, but for this analysis raw scores (which can be converted to percentiles or used direct from test results) are used. The following tabulations were made after dividing examinees into approximately three equal groups based on test scores:

	CPA GRADES					
	Number of Candidates Who Made					Total No.
	75 or more	65 to 74	55 to 64	45 to 54	44 or less	
	AUDITING					
Level II Scores						
24 or less	0	0	2	5	1	8
25 to 34	0	2	5	3	0	10
35 or more	4	1	2	1	0	8
Orientation—Verbal Scores						
49 or less	0	0	3	4	1	8
50 to 59	2	1	4	2	0	9
60 or more	2	2	2	3	0	9
Orientation—Quantative Scores						
29 or less	1	0	1	2	0	4
30 to 41	1	2	5	7	1	16
42 or more	2	1	3	0	0	6
	THEORY					
Level II Scores						
24 or less	0	0	1	2	5	8
25 to 34	2	0	4	2	2	10
35 or more	5	0	3	1	1	10
Orientation—Verbal Scores						
49 or less	1	0	2	3	4	10
50 to 59	3	0	2	1	2	8
60 or more	3	0	4	1	2	10
Orientation—Quantitative Scores						
29 or less	1	0	1	2	1	5
30 to 41	3	0	4	3	7	17
42 or more	3	0	3	0	0	6
	LAW					
Level II Scores						
24 or less	0	1	5	0	2	8
25 to 34	2	0	2	6	0	10
35 or more	5	0	3	1	0	9

	CPA GRADES					
	Number of Candidates Who Made					
	75 or more	*65 to 74*	*55 to 64*	*45 to 54*	*44 or less*	*Total No.*
Orientation—Verbal Scores						
49 or less	0	0	4	3	2	9
50 to 59	3	0	3	2	0	8
60 or more	4	1	3	2	0	10
Orientation—Quantitative Scores						
29 or less	0	0	3	1	0	4
30 to 41	2	1	7	4	2	16
42 or more	5	0	0	1	0	6
	PRACTICE					
Level II Scores						
24 or less	0	1	0	4	5	10
25 to 34	1	2	2	3	1	9
35 or more	5	2	1	1	0	9
Orientation—Verbal Scores						
49 or less	1	2	0	3	3	9
50 to 59	2	1	2	3	1	9
60 or more	3	2	1	3	2	11
Orientation—Quantitative Scores						
29 or less	0	1	1	2	3	7
30 to 41	2	4	2	5	3	16
42 or more	4	0	0	1	0	5
	TOTAL ALL SUBJECTS					
Level II Scores						
24 or less	0	2	8	11	13	34
25 to 34	5	4	13	14	3	39
35 or more	19	3	9	4	1	36
Orientation—Verbal Scores						
49 or less	2	2	9	13	10	36
50 to 59	10	2	11	8	3	34
60 or more	12	5	10	9	4	40
Orientation—Quantitative Scores						
29 or less	2	1	6	7	4	20
30 to 41	8	7	18	19	13	65
42 or more	14	1	6	2	0	23
	AVERAGE OF ALL SUBJECTS[1]					
Level II Scores						
24 or less	0	0	1	4	3	8
25 to 34	0	2	3	2	1	8
35 or more	3	2	1	1	0	7
Orientation—Verbal Scores						
49 or less	0	0	1	2	4	7
50 to 59	1	2	2	2	0	7
60 or more	2	2	2	3	0	9
Orientation—Quantitative Scores						
29 or less	0	1	0	2	1	4
30 to 41	1	1	4	5	3	14
42 or more	2	2	1	0	0	5

The foregoing analysis of the relationship between the separate tests and CPA grades indicates that Level II was most closely related to CPA results. However, low scores in the Verbal portion of the Orientation test indicate probable failure on the examination and high scores on the Quantitative portion indicate probable success on the examination. As might be expected, it does not appear that the predictive value of either test alone is as great as that for Level II and Orientation considered together.

Background of Candidates

What is the educational and experience background of the candidates? Since other studies have shown that the educational and experience background of CPA candidates probably has some effect on their performance, and since that background might not be reflected to the same degree. in the objective tests, it may be worth considering. Certain aspects of it are shown for the six candidates who were in the top one-half in both objective tests; for the seven candidates who were in the third quarter in one test and in the third or fourth in the other; and for the five candidates who were in the bottom quarter in both tests.

	6 in top one-half	*Candidates Passing No Subjects*	
		7 in 3rd or 3rd & 4th	*5 in 4th Quarter*
Employment Status—May 1953:			
In public accounting	3	4	0
In private accounting	0	2	2
In government accounting	1	1	2
In non-accounting work	1	0	0
Student	1	0	0
Unemployed	0	0	1
Total	6	7	5
Months of Public Accounting Experience:			
None	3	3	3
1 to 6 months	0	0	1
6 months to 24 months	1	1	1
24 months and over	2	3	—
Total	6	7	5
Education:			
Business school only	0	2	0
Correspondence school only	1	0	0
Junior college only	0	0	0
Junior college and business school	1	0	1
Four-year college—no degree	0	0	1
Four-year college—degree	4	5	3
Graduate school	0	0	0
Total	6	7	5

[1] Includes only the candidates taking all four subjects.

	6 in top one-half	Candidates Passing No Subjects: 7 in 3rd or 3rd & 4th	5 in 4th Quarter
Numbers of Time CPA Examination Taken:			
1st attempt	3	1	3
2nd attempt	0	0	1
3rd attempt	0	2	0
4th attempt	1	2	0
5th attempt	1	2	0
6th or more	1	0	1
Total	6	7	5
Class Rank of College Graduates:			
Top 10%	1	0	0
2nd 10%	2	3	1
3rd and 4th 10%	1	1	2
Bottom 60%	0	0	0
Data not given	0	1	0
Total	4	5	3

It seems surprising that only seven of the eighteen candidates were in public accounting, that nine of them had no public accounting experience whatever, that nine, or one-half were in private or governmental accounting and presumably do not need to become CPA's as evidence of competence for public accounting. Also it is interesting that eight candidates completed a four-year college course, ranked above 60% of their classmates, but still ranked below 50 per cent of employed accountants on their objective tests. This seems to indicate that public accounting is fairly selective based on college grades.

PREDICTING FROM EARLIER TESTING

Can predictions be made for college students? The earlier in a course of study or in an employment situation that a reasonably accurate prediction of future accomplishment can be made the more benefit can be derived through saving in effort. Both of the two tests under study are appropriate for use with college seniors. While a great number of seniors undoubtedly have taken the two tests and later taken the CPA examination, it has been difficult to identify them. However, a number of candidates were identified in 1950 and 1951 who had taken the Orientation test or the Achievement test. In total there is a reasonable number of these for a study of considerable significance. The result of such a study will appear in the spring 1954 bulletin for the College Testing Program. This study includes all data obtained to date for all of the forms of the two tests. Expressed in terms of correlation coefficients, this study indicates some predictive value for the tests considered individually. However, no study was made of the predictive value for the two tests considered together. The data for Orientation, Form A and Level II, Form C, produced the following:

CPA Subject	*No. in Study*	*Correlation with Orientation Total*		*No. in Study*	*Correlation with Level II, C*	
		r	*P.E.*		*r*	*P.E.*
Auditing	48	.444	.078	34	.278	.107
Theory	49	.405	.081	31	.563	.083
Problems	38	.431	.089	30	.585	.081
Law	46	.357	.087	28	.270	.119
Average of All	35	.531	.082	19	.455	.123

These measures of relationship compare with the following correlations based on the test scores and CPA examination grades obtained for May 1953 candidates.[3] (See tabulation at top of next page.)

It is noted that the correlation for the Orientation test taken during the senior year in college was about the same, on the

[3] Bulletin number 19 in the College Accounting Program, page 9.

CPA Subject	*No. in Study*	Correlation with Orientation Total		*No. in Study*	Correlation with Level II, C	
		r	*P.E.*		*r*	*P.E.*
Auditing	26	.36	.115	26	.59	.086
Theory	28	.24	.121	28	.58	.085
Problems	28	.72	.061	28	.41	.106
Law	27	.50	.098	27	.45	.103
Average of All	23	.53	.101	23	.72	.068

average, as it was when the Orientation test was administered at the time of the CPA examination, but that the relationship of Level II scores made in college with CPA results was generally not quite that resulting from administration of the Level II test at the time of the CPA examination. Yet the scores made by seniors do show considerable value in predicting CPA examination grades. If the comparisons are made by groups rather than in terms of correlations we find the following relationships:

quent performance on CPA examination papers. The relationship between the top group on Level II and CPA grades is good since they failed by as much as fourteen grade points on only 19% of their papers. In view of the known fact that some CPA candidates do not seriously attempt to pass all papers at once, this appears to be a very satisfactory relationship. In contrast those who as seniors made less than 20 on Level II, failed 77.3% of their papers by 14 or more grade points and passed only 4.5% of their papers. A reasonably close relation-

CLASSIFICATION OF 123 SUBJECT PAPERS WRITTEN BY CANDIDATES—CUMULATIVE PERCENTAGES OF PAPERS IN VARIOUS CLASSIFICATIONS

Scores on CPA Paper	*Seniors—Scores on Level II, C*				
	Over 40	*36–39*	*30–35*	*20–29*	*0–19*
55 or less	4.7	6.6	14.3	19.0	45.5
61 or less	19.0	13.3	25.0	32.5	77.3
65 or less	23.8	33.3	35.7	43.3	86.4
74 or less	28.6	53.3	50.0	62.2	95.5
75 or above (passing marks)	71.4	46.7	50.0	37.8	4.5
	100.0	100.0	100.0	100.0	100.0

CLASSIFICATION OF 181 SUBJECT PAPERS WRITTEN BY CANDIDATES—CUMULATIVE PERCENTAGES OF PAPERS IN VARIOUS CLASSIFICATIONS

Scores on CPA Paper	*Seniors—Scores on Orientation A*					
	Over 101	*90–101*	*84–89*	*78–83*	*66–77*	*0–65*
51 or less	0.0	6.5	10.7	24.1	24.2	31.1
59 or less	19.4	25.9	32.1	41.3	45.4	58.7
74 or less	48.4	54.9	71.4	62.0	72.7	75.9
75 or above (passing marks)	51.6	45.1	28.6	38.0	27.3	24.1
	100.0	100.0	100.0	100.0	100.0	100.0

It is apparent from the two preceding tables that there is considerable relationship between scores on each of the tests taken by these college seniors and subsequent performance on CPA examination papers.

ship is shown for the top and bottom groups on the Orientation test. About one-sixth of the papers were written by candidates having scores in each of the groups

for the Orientation test. Only 19.4% of the papers written by the top group were 16 points or more below passing, whereas 58.7% of the ones written by the bottom group lacked 16 points or more of passing.

CONCLUSION

While additional studies are needed to define more exactly the accuracy with which the Orientation and Level II tests will enable the prediction of CPA grades, these studies are sufficiently similar in results to indicate that there is predictive value in the two tests. Perfect relationship, which would mean that one test could be substituted completely for the other with unchanged results, is not to be anticipated. However, it seems probable that by considering the results of both the Orientation test and the Level II test, predictions for the top and bottom groups can be made quite accurately and that some probabilities can be established for the middle groups. The cooperation of additional state boards of accountancy will be sought to extend the present studies.

AUDITING WITH ACCENT ON THE INCOME STATEMENT*

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THIS PAPER proposes to adopt the income statement approach in auditing instead of the traditional balance sheet approach. It is not a complete abandonment of the audit of the balance sheet but only a shift in the direction of the emphasis. Instead of auditing the balance sheet with the income statement as a by-product, the process is reversed, that is, the income statement should be audited with the balance sheet as a by-product.

Much has been written about the income statement. A survey of contemporary accounting literature will indicate that this subject is a central feature dominating the writings of practitioners as well as teachers of accounting. Perhaps, this is a belated recognition of the fact that the value of a business is dependent mainly upon its capacity to generate income.

But this concern over profits seems to be as old as the art of bookkeeping itself. Even the earliest financial statements of Florentine merchants in the fourteenth century were used to determine profits of the then flourishing partnerships.[1]

In the sixteenth century, a so-called "balancing account" was developed, wherein real accounts were closed in a manner similar to the closing of revenue and expense into a profit and loss account.[2]

In the United States, as early as the turn of the present century, during the First Congress of Accountants, Sir Arthur Lowes Dickinson read a paper about the problem of profit determination.[3]

It is only in 1938 that the Committee on Accounting Procedure of the American Institute of Accountants expressed the following view which crystallized professional opinion:

> A fair determination of income for successive accounting periods is the most important single purpose of the general accounting reports of a corporation.[4]

Since then, the Committee on Accounting Procedure has issued a number of research bulletins, which, with a few exceptions, were primarily concerned with the Income Statement.

The basic trend over the years drawing the emphasis from the balance sheet to the income statement is demonstrated by the changes in the recent annual reports of corporations.

Several companies[5] are now placing the Statement of Income before the Balance Sheet in their published reports. Even the forms of financial statements are being subject to various experimentation in efforts to increase the emphasis on the income statement. The long drawn-out controversy over the single-step and the multiple-step methods of presenting items in the income statement is another index of the paramount importance of this financial

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* Based on a thesis entitled "An Auditing program with the income statement approach" submitted to the Graduate Division of the School of Commerce, Northwestern University.

[1] Edward Peragallo. *Origin and Evolution of Double Entry Bookkeeping*. New York: American Institute Publishing Company, 1938, pp. 136–137.

[2] A. C. Littleton. *Accounting Evolution to 1900*. New York: American Institute Publishing Co., 1933, p. 130. Latest mention of a balancing account was found by Littleton in E. G. Hall, *Business Manual*, Logansport: 1894.

[3] George O. May. "Limitations on Significance of Invested Cost," THE ACCOUNTING REVIEW, October, 1952, p. 438.

[4] *Changing Concepts of Business Income*, New York: Macmillan Co., 1952, p. 19.

[5] A few examples are: U. S. Steel Corporation, Burroughs Adding Machine Company, Caterpillar Tractor Company and Swift and Company.

statement. Attempts to simplify terminology have recently been introduced to make the statements more useful to those not technically trained in accounting.

George D. Bailey, past president of the American Institute of Accountants in his "The Increasing Significance of the Income Statement" writes:

> This is more than a shift in emphasis. It is a recognition that the income accounts is more revealing of the corporation's financial affairs than is the balance sheet. . . .[6]

Perhaps, the strongest statement about this trend comes from J. Smart, past president of the Illinois Society of Certified Public Accountants, when he wrote:

> The accounting profession is in more or less general agreement on the significance of the income account and is of the opinion that if the income accounts are correct each year, the balance sheet will take care of itself.[7]

These recent trends are understandable in view of the uses to which the income statement is employed. A brief review, without making a detailed analysis, of the points of view of the different parties interested in corporate affairs explains why this is so.

Management considers the income statement as an index of performance. It is a measure of managerial ability. By analogy it is an account of a completed voyage as at a specified port. Valuable in recognizing the effects of existing managerial policies, it also points out unfavorable trends. From this viewpoint, balance sheet values represent only unexpired costs. This view is shared by many accountants who treat the balance sheet as a bridge between two income statements.

To the stockholders, the same view applies. To them it is not only an historical record of past performance. It is also a basis upon which the future may be forecast. To them it is not a question of the value of the assets but how they were used and how much return they did get. This view holds true whether the reader of the financial statements is an actual stockholder or a prospective investor.

Cohen in his report states:

> We consider the profit and loss is as important as, if not more important than, the balance sheet, since the trend of profits is the best indication of the prosperity of the company.[8]

Some writers think that even the traditionally conservative credit grantor no longer places as much emphasis as formerly on asset values as security for his loan but looks with more interest than he did years ago at the capacity to earn. As John N. Myer puts it:

> In more recent times income statements have become regularly available in both the investment and the credit fields; and, in appreciation of their importance, emphasis has veered from the balance sheet to the income statement.[9]

This is especially true in industries where assets are so specialized that they have little realization value in comparison to their earning power.

That the government is vitally interested in corporate income does not need elaboration. One has only to look at the various rules and regulations of many governmental institutions prescribing definite forms and policies regarding the presentation of income.

Labor is one segment of the social structure that has vested interest in corporate affairs which cannot be ignored. It has been jealously watching its share of the corporate income. Many times industrial peace is at stake only because labor thinks that it should receive a greater share of the industrial revenue as shown by the income statement.

There has been a growing concept that

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[6] *The Journal of Accountancy,* January, 1948, p. 10.

[7] "Public Accounting Practice in the U. S. with Particular Reference to Current Problems," *The Accountant,* August 14, 1948, p. 130.

[8] As quoted by Hume Nutcombe "The Use of Published Accounts—The Viewpoint of an investor," *The Accountant* December 16, 1950: London, p. 610.

[9] *Financial Statement Analysis,* New York: Prentice-Hall, 1952, p. 26.

business enterprises, particularly corporations, are semi-public institutions. Business has come to realize that it has its share of social responsibility. It is for this reason that many economists in trying to measure "gross national income" as well as "social efficiency" use corporate income statements as a starting point. There cannot be, it seems, a more revealing report than the income statement in finding the distribution of enterprise profits among the factors of production.

Since the ultimate function of accounting is proper allocation among respective equities of the returns of a business enterprise, it follows that greater stress should be placed on the income statements which measure the annual earnings.

Although there has been a considerable refinement of auditing principles and procedures during the past two decades, the shift in emphasis accorded to financial statements discussed above has not been reflected in public practice.

The class of audit discussed here is one which is commonly performed by independent certified public accountants. Holmes describes it as a "general audit," or balance sheet audit with a test and review of expense and income accounts."[10] Often, it is called an examination of financial condition with a review of operations. The label does not matter much as long as it is a type of examination which the certified public accountant "makes as a basis for an opinion on the fairness with which financial position and results of operations are presented."[11]

It is true that recently more and more work is performed on nominal accounts in this type of audit. Yet, a greater portion of the work is directed toward the verification of balance sheet items rather than the examination of nominal accounts. This is due to the basic philosophy underlying the audit of this type, that the net income may be satisfactorily proven through the audit of balance sheets at the beginning and at the end of the period. By their nature, the balance sheet and the income statement are so interrelated that the misstatement of one leads to that of the other. Because of this relationship, the audit of one substantiates a large portion of the other. Hence a general audit may be approached either through the balance sheet or through the income statement.

Current auditing practice is reflected in more than a dozen textbooks, which seldom carry more than a short chapter devoted to income and expense accounts. The fundamental assumption behind this emphasis on balance sheet accounts is that in the verification of each particular real account, the related nominal accounts are also sufficiently examined to enable the auditor to express an opinion as to the fairness of operating results.

Thus this view subscribes to the principle that if balance sheet accounts are properly stated, the accounts in the income statement are necessarily stated properly at least in aggregate. The theory of conservation of assets is implicitly applied. This concept was developed during the days when balance sheets were generally looked upon as supposedly showing the liquidation value of a business.[12]

A usual audit procedure is to substantiate the net changes in an account during a given accounting period by verification of the beginning and closing balances coupled with certain tests of the transactions during the period. For instance, in the tests of accounts receivable, both charge sales and collections during the period are reviewed on a sampling basis. Thus, most audit programs are designed to examine each account as in the order

[10] Arthur W. Holmes, *Auditing Principles and Procedures*, 3rd edition. Chicago: Richard Irwin, Inc., 1951, p. 9.

[11] American Institute of Accountants, *Audits by Certified Public Accountants*, New York: 1950, p. 8.

[12] Thomas York, "Relation of Income Statement to the Balance Sheet and Earned Surplus Analysis," *The Journal of Accountancy*, January 1941, p. 46.

in which it appears on the balance sheet.

The income statement viewpoint is the reverse of the balance sheet viewpoint. It considers the balance sheet accounts as residuals. Any overstatement or understatement of items in the balance sheet results in the distortion of the income statement. This view holds that if operations are properly stated, the balances of the accounts in the balance sheet are of necessity properly stated in the aggregate. This is in accord with the present-day concept that accounting is designed to allocate periodic income, that balance sheet values represent the historical cost of future sales of product or services.[13]

Some accountants even go so far as to write:

> If there were complete profit and loss accounting there would be less need for balance sheets.[14]

The sound presentation of balance sheet accounts, from this point of view, is dependent on the proper presentation of the items in the income statement. For instance, to determine the proper valuation of inventories in the balance sheet, the method of valuation used in the cost of goods sold has to be examined. Each of the methods of costing sales such as LIFO, FIFO, Average Cost, etc., produces a different amount in the remaining inventory. Thus, the so-called methods of inventory valuation are in reality methods of pricing costs of goods sold.

There are several reasons advanced by some writers why undue stress on the balance sheet should be abandoned and why greater importance should be centered on the income statement:

[13] *Ibid.*

[14] Thomas Byrnes, K. L. Baker, C. A. Smith, *Audit*. New York: Ronald Press, 1948, p. 487.

1. As stated by Victor Stempf: "Accounting is not essentially a process of valuation but rather the allocation of costs."[15] The values on the balance sheet do not represent liquidation values but rather deferred values remaining after deducting the proper amount used in the operation during a given period.
2. Principles of valuation used in accounting for balance sheet accounts are dependent on the principles used in costing items on the income statement. "Even the accounting for fixed assets has for its ultimate goal the fair presentation of periodic income."[16]
3. In actual practice, the theory that if balance sheet accounts are properly stated, the income statement accounts must of necessity be properly stated, does not often work. "After the examination of balance sheet accounts, examination of income and expense accounts frequently leads to correction of balance sheet items."[17]
4. In most cases, the dollar amount of consumption is far greater than the remaining balance of an asset account. If the auditor were to certify that the income statement fairly presents the operating results, greater attention should be given to the values expired during the operation of a given period.[18]

[15] "Inventory Principles and Practices," *The New York Certified Public Accountant*, June, 1943, p. 343.

[16] W. A. Paton, "Costs and Profits in Present-day Accounting," *N.A.C.A. Bulletin*, October 1, 1934, p. 130.

[17] Robert H. Montgomery, et al., *Montgomery's Auditing*. 7th Edition. New York: Ronald Press Co., 1948, p. 456.

[18] Stanley Zalewski, "Internal Auditor Should Shift Major Attention from Balance Sheet to Income Statement," *The Journal of Accountancy*, May, 1950, p. 415.

SOME ASPECTS OF PUBLIC UTILITY ACCOUNTING

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THE PRIMARY PURPOSE of this paper is to give a brief summary of some aspects of public utility accounting in so far as these views apply to so-called "clearing" accounts, particularly in the case of transportation expenses within the utility itself. Furthermore, the paper is written to support the contention that generally accepted accounting principles are recognized and applied by public utilities, although the utility industry must maintain a uniform system of accounts as prescribed by state and federal regulatory commissions.

It might be well at first to delimit the field of public utilities which consists of electric light and power; gas and steam heating; telephone, telegraph, grain elevators, railroads; water, highway, air, and pipe-line transportation; and to confine our attention only to a public utility company which furnishes electric and gas service to a metropolitan area in the United States. This utility from hereon will be referred to as the Company.

Uniform System of Accounts

The Company classifies its accounts in accordance with the prescribed system of accounts issued by the public service commissions. It files with the commissions a copy of its manual of accounts and any changes that are made in the account classification. At first glance, it appears that the utility has no choice in the determination of its accounting procedure except to follow the regulations and requirements laid down by the regulatory authority. This is not altogether true, however. Considerable latitude in both discretion and interpretation is given the Company in the break-down of its account subdivisions, especially for control and cost determination purposes. Sub-divisions of any account may be kept providing they "do not impair the integrity of the prescribed accounts."

An analysis of a uniform system of accounts shows that the public service commissions are attempting primarily to allocate costs, such as matching costs against income for a particular period of time, distinguishing between capital and revenue costs, and separating costs and income into categories which measure equitably the rights and interests of the customer, creditor, employee, and investor.

Certain account classifications are established to facilitate the allocation of costs. These classifications include the accrued and deferred accounts, work in progress, joint expenses (debit and credit), and clearing accounts. All charges shall be just and reasonable, a work order system in general shall be required, and accounts shall be designed to reflect the operating results of each type of service, such as electricity, steam heating, water and gas.

CLEARING ACCOUNTS

As this paper has to be limited in scope, only the accounting problems connected with clearing accounts will be discussed. Clearing accounts contain the accumulation of costs under similar account titles during the fiscal period, the amounts of which are transferred currently to the particular permanent account on some predetermined cost distribution basis. Public

utilities are given a wide scope in the introduction of clearing, temporary, or experimental accounts; the only limiting feature in the keeping of these accounts, according to one public service commission (New York State) is that "such additional accounts do not impair the integrity of the prescribed accounts, and further provided that within thirty days from June 30 and December 31 of each calendar year the utility shall notify the Commission of the nature and purpose of any such accounts which have been opened during the six months prior thereto."

Some of these clearing accounts may be prescribed by the commissions, including charges by associated companies, store expenses, transportation expenses, laboratory expenses, shop expenses, tools and work equipment expenses, and building service. Others may be added by the utility.

The Company in this example classifies its clearing accounts into three groups for control purposes; the main account categories under each group are listed as follows:

Group 1	*Group 2*	*Group 3*
Store Expenses	Building Service	Stationery and Supplies
Transportation Expenses	Communication Service	Inside Plant Engineering and Engineering Supervision
Laboratory and Test Expenses		General Supervision and Engineering
Shop Expenses		Sales Department
Outside Plant Labor and Related Expenses		Property Protection Department
Inside Plant Labor and Related Expenses		Blueprint Services
Outside Plant Engineering and Engineering Supervision		Operating Cable Repair Shop
Tool Room Expenses		Payrolls
		Etc.

Items under each group, in turn, might have several subsidiary accounts making up the total for each general category. For example, under building service, each building location will be identified and the corresponding expenses connected with this location assembled. Laboratory and test expenses include accounts containing the expenses incurred in the chemical engineering bureau and the performance engineering bureau of the mechanical engineering department, together with the expense of operating the test bureau in the electrical engineering department.

Each item or similar account classification within a group has an offsetting credit account labeled, "Transfer to Other Accounts," which is posted monthly with the total expenses allocated in that particular category to another clearing account or to a permanent revenue or capital account. The expenses found in each clearing account are distributed on some predetermined cost basis which in the judgment of the utility will clear the total charges to the clearing account equitably over the year. Percentage, square footage, number of units, hourly rates, service rates, etc., are cost distribution methods that can be applied in allocating clearing account expenses.

Transportation Expenses

The Uniform System of Accounts (New York) states that the transportation expense clearing account "shall include the cost of supervision, labor and expenses incurred in the operation and maintenance of the electrical general transportation equipment," and that "this account shall be cleared by apportionment to operating expense, electric plant or other accounts on a basis which will distribute the expenses equitably."

Such transportation service must be dis-

tinguished from the transportation service furnished by the railroad, highway, water and air transportation industry. The transportation service discussed here pertains to the cost of owning and operating the trucking and conveyance facilities within the utility organization.

The transportation expense category of clearing accounts contains four main classifications as follows, together with the basis used in clearing these accounts:

Account	*Basis Used in Clearing Account*
Transportation Dept. Labor and Related Expenses:	
General Supervision	Percentage
Equipment Maintenance Bureau	Man-Hour Rate
Equipment Assignment Bureau	Man-Hour Rate
Operation and Maintenance of Vehicles	Service Hour

General Supervision

Sub-accounts are established under each classification for control and administrative purposes. General supervision consists of the following debit accounts: Salaries and wages, including the salaries and wages of the manager, assistant manager, and the immediate office staff; employee training, or the cost incurred in operating department schools, such as instructor's salary, preparing and setting up school facilities, and the non-productive time of student engineers; building and communication services, containing that portion of expenses transferred from the building and communication service clearing accounts applicable to the general office force; and other expenses, or the cost of stationery and printing, miscellaneous petty cash, etc. The credit account "Transfer to Other Accounts" is credited with amounts distributed to the applicable sub-accounts under the Equipment Maintenance Bureau and Equipment Assignment Bureau categories. General supervision can be allocated between the maintenance and assignment bureaus on some equitable percentage basis, determined by special studies conducted by the accounting department.

Assuming that the cost of salaries and wages in general supervision should be distributed equally between equipment maintenance and assignment, at the end of each month, one-half of the amount in this account is transferred to the respective "Supervision and Clerks" accounts in the two bureaus. This method is used in distributing the amounts in the other general supervision accounts, the offsetting credit total being posted to the transfer account.

Equipment Maintenance and Assignment Bureaus

The sub-accounts under each of these bureaus contain similar classification titles as follows:

Supervision and Clerks
Excused Time
Employee Training
Building and Communication Services
Other Expenses
Direct Labor
Transfer to Other Accounts—Credit

The employee training, building and communication services and other expense accounts, in addition to supervision and clerks (as explained above), will contain their proportionate share of the cost of general supervision. The direct labor debits are determined by the Payroll Department, on the basis of the employees' time reports which indicate the account or order number on which the employee has worked. The amount chargeable to the direct labor accounts in the equipment maintenance and assignment bureaus is found in the labor distribution summary prepared by the Payroll Department.

The Transfers to Other Accounts—Credit is credited with the amount distributed to accounts and orders at established man-hour rates.

Man-Hour Rates

The man-hour rate method is used to clear the amounts charged to the equipment and assignment expense accounts. This method of cost distribution consists of charging the direct labor hours to specific accounts at an average rate per hour which *includes the cost of direct labor* and the related indirect labor and expenses of a department. This procedure actually accounts for the total labor and overhead costs of a department or cost center, since the direct labor cost is contained in the average hourly rate. For example, when a carpenter or painter repairs your home, he will charge a certain hourly rate in addition to cost of materials; yet this rate must include not only his direct labor cost but also his indirect expenses, namely, the cost of getting to and from work, the depreciation and repairs of his tools, insurance, interest on borrowed money to acquire the tools, etc. For years some dentists have been using this method, whereby they charge their patients a fee based on the cost of materials plus an overall hourly rate.

The same theoretical situation applies here. When a man employed in the equipment maintenance bureau performs services for the operation and maintenance of vehicles, stores, construction work in progress, and production maintenance, his service, in addition to his direct labor cost, will include a part of the overhead of the equipment maintenance bureau. Likewise, in the case of the equipment assignment bureau, where approximately 90% of the assignments consists of driver and chauffeur services, the overhead is added to the direct labor expense for charging the department or bureau account with adequate driver costs.

In order that the average rates remain fairly constant during the year and are not distorted from month to month because of vacations, holidays or other seasonal factors the rates are predetermined, based upon a study of previous years' experience, the anticipated direct labor hours, and estimated future departmental labor and related expenses.

As the year progresses, consideration is given to the prevailing hourly rates, and adjustments are made in order that the total departmental labor and overhead will be distributed equitably over the year.

An illustration of the monthly report of the Company is shown at the top of the next page.

In the illustration, for the month of August indirect labor cost and expense in the Equipment Assignment Bureau amounted to $30,800. Direct labor cost totaled $88,700 or a total direct labor and indirect expense cost of $119,500. Since the number of direct labor hours charged to the bureau amounted to 44,512, the actual direct man-hour rate was $2.68. A predetermined rate of $2.65 was applied to each hour to direct labor allocated to other accounts during the month. In January the predetermined rate was $2.60, February through May $2.75, and decreased to $2.65 from June through August. Rates are increased or decreased in units of five cents. No change was contemplated in the rate for September.

As a rule adjustments in rates are insignificant. When substantial adjustments are necessary they usually can be explained as the result of wage increases, transfers of personnel between departments, and extraordinary expenditures.

The man-hour rate is simple and convenient to apply, and has proved to be a consistent and dependable standard for cost allocation purposes in cases where there is no great variation in the pay scale of groups of men working in a particular crew or cost center, such as setting up poles, stringing miles of overhead wire, and excavating and constructing sections of underground conduit. The average hourly

STATEMENT OF LABOR AND RELATED EXPENSE—TRANSPORTATION EXPENSES—CLEARING TRANSPORTATION DEPARTMENT—EQUIPMENT ASSIGNMENT BUREAU

Account Number	*Description*	*Month of August 1953*	*Eight Months Ended August 31, 1953*	
			Amount	*Per Hour*
	Indirect Labor and Expense			
493-130	Supervision and Clerks	$ 10,000	77,000	.24
493-132	Excused Time	8,000	35,000	.11
493-133	Employee Training	6,000	35,000	.11
493-135	Building and Communication Services	3,300	11,000	.03
493-137	Other Expense	3,500	51,300	.16
	Total Indirect Labor and Expense	$ 30,800	209,300	.65
493-138	Direct Labor	88,700	636,500	1.98
	Total Labor and Related Expense	$119,500	845,800	2.63
493-139	Transfers to Other Accounts—Credit	117,957	867,000	2,70
	Balance	$ 1,543	(21,200)	(.07)
	STATISTICS			
	Total Number of Employees	269		
	Total Direct Labor Hours	44,512	321,287	
	Total Cost per Direct Labor Hour:			
	Indirect Labor and Expense	$ .69	.65	
	Direct Labor	1.99	1.98	
	Total	$ 2.68	2.63	
	Hourly Rate Used			
	January	$ —	2.60	
	February–May	—	2.75	
	June–August	2.65	2.65	

rate method is flexible, since predetermined rates can be based on only those elements of costs required or controlled for a particular purpose. Furthermore the rate can be used to establish standard billing rates for services performed for customers, governmental agencies, railroads, and contractors.

Operation and Maintenance

The operation and maintenance of vehicles is the third step in collecting the costs pertaining to the establishment and administration of the transportation facilities within the utility. The expense of general supervision relating to the equipment maintenance and assignment bureaus has been distributed; a clearing account in each bureau has been established to allocate the labor and related expenses; and finally, a clearing account for the operation and maintenance cost of vehicles is established in order to control the reported service hours of each vehicle, and to insure an equitable distribution of this cost to each account and work order affected.

Costs incurred in the operation and maintenance of trucks, trailers, diggers, cranes and cars are charged to appropriate sub-accounts without regard to vehicle class identity. The elements of cost and a brief explanation of each follows:

Gasoline and Oil—includes cost of gasoline and cylinder oil.

Tires and Tubes—includes the time of employees engaged in fixing flats, mounting and dismounting tires and wheels (these debits arise from the concomitant credit entries found in the transfer clearing account in the equipment maintenance bureau); also cost of tires, tubes, flaps, rims, valves, and blowout patches.

Lubrication—includes time of employees engaged in greasing and oiling; also cost of grease, oil and brake fluid.

Washing and Cleaning—includes time of employees engaged in washing, cleaning, and polishing vehicles; also cost of all cleaning and polishing materials.

Preventive Maintenance—includes labor cost engaged in tests, trials, and inspections.
Vehicle Repairs—cost of labor, material, and other expenses incurred in connection with all vehicle repairs.
Garage Equipment Maintenance—includes time of employees and contractors engaged in repairing tools and equipment.
Garage Building Service—includes the building service costs applicable to garage space transferred from Building Service clearing account; also cost of alteration to garage areas.
Insurance—includes cost of public liability, fire and theft insurance premiums on vehicles.
Taxes—includes all taxes, license and registration fees applicable to vehicles.
Depreciation—includes depreciation of vehicles and transportation equipment.
Other Expenses—includes cost of obsolete materials and other miscellaneous expenses of the transportation department; also the standby time of vehicles.
Transfers to Other Accounts—Credit—credited with the amount distributed to accounts and orders at established vehicle rates per hour.

Vehicle Time Report

Methods must be devised by the transporation department to account for the time of all vehicles. Each utility organization will develop its own system of record keeping and internal control. In general, however, a time report is prepared (daily or weekly) indicating the time when the vehicle is used, the department to which the vehicle is assigned, and the number and make of vehicle. The time reports can be maintained on a punch-card system.

Each day the driver of the vehicle indicates the hours (or fractions) of usage applicable to the respective accounts or orders, and also the hours of non-productive time due to vehicle breakdown. Service hours for assigned vehicles are reported on the basis of eight hours a day for each normal work week. Vehicles used in excess of the eight-hour day are reported accordingly. Special rules govern the reporting of unassigned vehicles, idleness of equipment because of holidays, cars taken home, vehicles in for repairs, and general delivery and taxi services.

The completed vehicle time report showing the necessary information relative to its usage for the day or week, together with its mileage, is sent to the statistical bureau for compiling the transportation distribution summary. Upon receipt of these reports, the statistical bureau (or transportation department) checks that a report has been received for each vehicle owned. A transportation distribution summary is then compiled for the month, showing the number of hours for each vehicle, rate per service hour, and extended total, classified for accounting treatment by the General Accounts bureau.

In addition, the statistical bureau will analyze the credits in the "Transfers" account and compile a summary showing the amount and hours of service rendered by each class of vehicles.

Determination of Vehicle Rates

Vehicle rates for each service hour are established for the various classes of vehicles by the use of index numbers. These indices have been ascertained after careful study and analysis of past performance. The following list is an example.

Class	*Type*	*Rate Index*
1	Passenger Cars—Light Weight (Under 120" wheel base)	1.0
2	Passenger Cars—Heavy Weight (120" wheel base & over)	1.5
3	Trucks—Up to and including 1½ tons	1.0
4	Trucks—Over 1½ tons and up to and including 2½ tons	1.5
5	Trucks—Over 2½ tons and up to and including 4 tons	2.0
6	Trucks—Over 4 tons	2.5

The formula followed in determining the service hour rate can be outlined in the following manner:

(a) Multiply the number of hours of

service of each class by the rate index.

(b) Determine the total index-hours for all classes of vehicles.

(c) Find the total actual operation and maintenance cost for the year.

(d) Divide total operation and maintenance (in (c) above) by the total index-hours calculated in (b).

(e) The resultant figure is the rate per service hour for an index number of 1.0, or Class 1 vehicles.

Supposing that the figure in (e) is found to be $1.00 per hour; then the service hour rates for Classes 1 and 3 would be $1.00; Classes 2 and 4, $1.50; Class 5, $2.00; and Class 6, $2.50.

Predetermined service hour rates can be specifically established for other classes of vehicles, such as motor coaches, fire engines, trailers, cranes, and ditch diggers, after individual studies have been made by the accounting department.

Transportation Distribution Summary

When vehicles are used in construction work in progress, operation and maintenance, sales, and administrative functions, the General Accounts bureau will receive the monthly transportation distribution summary showing the amount to be charged to each account, based on the information accumulated from the individual vehicle time reports. A journal entry is made charging the accounts receiving the benefits of the transportation service and crediting the transfer acccount. For example:

Construction Work in Progress	$24,000	
Clearing Accounts		
Group 1	16,000	
Group 2	1,400	
Group 3	21,000	
Retirement Work in Progress	11,000	
Other Work in Progress	12,700	
Operation and Maintenance		
Production Expenses—Electric	13,000	
Production Expenses—Gas	1,500	
Transmission and Distribution Expenses—Electric	27,500	
Distribution Expenses—Gas	22,500	
Customers' Accounting and Collecting Expenses	2,800	
Sales Expenses	5,100	
Administrative and General Expenses	6,500	
To Clearing Accounts—Group 1 Transportation Expenses—Clearing Operation and Maintenance of Vehicles Transfers to Other Accounts—Credit		$165,000

To distribute the cost of vehicle services, other than motor coaches, performed by Transportation Department applicable to August 1953, per "Transportation Distribution" summary.

The total transportation expenses made up of the transportation department labor and related expenses on one hand, and operation and maintenance of vehicles on the other, are charged to construction in progress, production expenses, retirement work in progress, sales, and administrative and general expenses by means of two separate accounting reports or work orders. The transportation distribution summary contains the amount of expense attributable to the operation and maintenance of the vehicle based on the service-hour rate, whereas the labor distribution summary will contain the amount of direct labor and related expenses to be charged to the account, based upon the man-hour rate. The transportation expense category

of clearing accounts (general supervision, equipment maintenance, equipment assignment, and operation and maintenance of vehicles) will be completely cleared by the end of the year. Furthermore, these accounts are cleared in such a manner that the costs of transportation are charged equitably throughout the period to the permanent accounts benefiting from the transportation service. An attempt is made by constant study and supervision to predetermine the cost distribution rates so as not to leave any significant balance in the clearing accounts at the end of the fiscal year. If there are small debit or credit balances remaining in the accounts, these items are closed annually by journal entry into the Miscellaneous General Expense account.

Vehicle Repairs

All cost of labor, material, and other expenses incurred in connection with the repair of vehicles is charged to the Vehicle Repairs sub-account of the transportation operation and maintenance clearing account in so far as the accounting treatment of these expenditures is concerned. The Transportation Department, however, in order to supplement the accounting process for recording these costs, maintains a statistical record by individual cars for the purpose of controlling repair expenditures more effectively.

Certain statistical procedures are instituted in order to analyze the extent and nature of the repair costs. Repairs to vehicles are classified as major, minor, accident, or fire. The statistical analysis is made on punched cards, and repair code numbers are established to identify the four classes of repairs and the department that performs the repair work.

Each employee engaged in repair work fills out a report for each vehicle repaired, listing the name, the date and car number, the description of work performed and the hours worked. The clerical staff of the Transportation Department will collect the reports, enter the information on punched cards, and compile the final result.

In order to distinguish between major and minor repairs, the Company has outlined a procedure which is described as "Cost Accounting for Major Repairs to Transportation Equipment." This procedure classifies major repairs into thirteen types, as shown below:

1—Complete engine overhaul
2—Ring job
3—Carbon and valve job
4—Engine bearings
5—Overhaul front end
6—King pins and bushings
7—Clutch overhaul
8—Transmission overhaul
9—Differential overhaul
10—Brake system overhaul
11—Body repairs
12—Complete paint job
13—Auxiliary equipment

An analysis of the above items shows that they can be classified as revenue rather than capital charges. The problem here is not to distinguish between an expense and a capital item, but to determine the extent and degree of the repair charge. A complete engine overhaul is differentiated from the installation of a new engine, and the same is true with the other overhaul jobs; but the reason for distinguishing between the various classes of repairs is mainly for informational and control purposes. Standards for making these distinctions are helpful to the employees whose duty it is to supervise the operation and maintenance of vehicles.

Depreciation

Supplementary studies and schedules are made to support the depreciation component in the transportation expense clearing account. Transportation equipment is classified as common utility plant

in service, as it is used for all departments and services. The book cost of transportation equipment in this category is segregated from other common utility property; likewise the reserve for depreciation applicable to transportation equipment is separately treated. The property account controls the separate units of vehicle equipment which are maintained on individual ledger sheets in the property records.

Sufficient data collected over the years have given the Company the necessary information to determine a depreciation rate for its vehicle equipment, based on life expectancy. The annual rate is calculated on the average life of the equipment. The average cost for a ten-year period is divided by the average depreciation charge for the same period, giving an approximate rate of 10% per year. Charges to the reserve for depreciation also have averaged about 10% of average book cost, indicating the fact that vehicle equipment is not a growing account, but has remained fairly constant during the past ten years. The question of what policy to follow relative to the depreciation of vehicle equipment is one for management to decide, based upon the requirement for an equitable depreciation charge sufficient to recover the costs of the original equipment when it wears out or becomes obsolete.

CONCLUSION

This paper has tried to describe some of the accounting techniques used by a typical public utility organization in handling its own transportation expenses. All companies, whether regulated or not, must rely on certain cost distribution methods in order to allocate the expenses of operation between services, departments and locations in an equitable manner. Utilities find the use of clearing accounts practical and convenient in collecting and distributing certain classes of expenses to various permanent accounts. The man-hour rate which includes the cost of direct labor and related overhead expenses is used not only in distributing transportation expenses but also in many other so-called "man-hour" accounts, such as shop expenses, laboratory and test expenses, outside and inside plant labor and related expenses, and property protection. It is a useful and purposive method when the pay variations of direct labor within a cost area or production center do not deviate materially from the average hourly rates. The man-hour rate has proved to be reasonably accurate, and when necessary, the rates can be substantiated to an approximate degree with actual costs.

Public utilities maintain considerable supplementary records in order to support and control their expenditures. Payroll and transportation department summaries furnish basic statistical data for cost distribution. Other records are maintained for special items, such as vehicle repairs, depreciation, building service, and shop expenses, which support the entries made in the books of account and furnish full information as to any item included in a particular account. Memoranda of all kinds are useful in making it possible for the utility to develop a history of each transaction completed or in progress.

AID TO MANAGEMENT BEYOND THE AUDIT

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Management has three main jobs.[1] One is to operate its enterprise at a profit. The second is to make its enterprise a good place in which to work. The third is to operate its enterprise and govern its own conduct so as to serve society most effectively. If the public accountant is to be of most possible aid to management he must help, if he can, with all three jobs. Emphasis in the past has been on the first job, making a profit, and the other two have been more incidental than they should have been. For management, and for the accountant too, this raises questions of training, of competence, and perhaps of desire to do all three jobs equally well.

UNDERLYING PREMISES

In considering the public accountant's general role in helping with these three jobs, there are two premises which will underly the following discussion.

One premise is that any socially undesirable feature in our free enterprise system preferably ought to be alleviated through self-improvement, and the public accountant has a social role in expediting such self-improvement, particularly in order to forestall further governmental restrictions.

The second premise is that the concept of independence is the most important consideration in this social role of the public accountant. Certainly the first responsibility of the accountant is to do a good technical job for his client. A good technical job for the client is in itself generally a social service. Nevertheless, it must be emphasized that doing a good technical job in itself is neither enough to justify professional status nor is it the full discharge of the accountant's social responsibilities. The accountant needs to be aware of the social implications of his technical job, to apply a social viewpoint to his work. Often this will be identical to a business viewpoint, i.e., the viewpoint of managers, directors, investors and creditors. But if consciously or unconsciously the accountant feels that the social and business viewpoints are always identical, his concept of independence will not be broad enough to earn the reliance of all segments of society.

Further development of the accountant's independence can lead to a growing role in an arbiter function which will aleviate friction between conflicting interests in our complex society. As Mr. John Carey puts it, the accountant can "remove sand from the economic machine." In this task, he will be of service to management, among other interests, but he must not be the advocate of management. Actually, advocacy of management will tend to be a disservice to management as well as a disservice to society.

To summarize, self-improvement of free enterprise is to be preferred to government imposed improvement, and the accountant's independence can have great social importance even in reference to aid to management. These assumed premises will be reinforced and made more specific in the following discussion.

HELPING MANAGEMENT DO A "BETTER JOB"

In aid to management the accountant has been moving slowly forward over the

[1] This same three-fold division is presented in an article by Donald K. David, "Human Relations and Productivity," *Systems for Modern Management*, May, 1952, pp. 5–6.

years and his services have become increasingly more valuable. At the same time, perhaps some have tried to push him faster than he should go. In the writer's opinion, increase in usefulness of accounts and accountants is a matter of evolution. Moreover, the accountant must not be presumptious in what he undertakes, and must not attempt new services for which he is not qualified.

In this evolution, almost any service of the accountant which will help business management do a better job is a social contribution. But what is a better job?

In considering an answer to this, other questions are raised. What is a business enterprise? Is it bricks and concrete, equipment, and working capital? Or is it people working as a team operating the bricks and concrete, equipment, and working capital? In other words, management has the difficult task of reconciling property values and human values. Furthermore, lack of skill in such reconciliation may be the cause of much of the conflict and distrust in the economic area and even in the political area. Labor disputes are leading examples. The "laissez faire" view that by looking after property values one would automatically serve human values is no longer generally accepted in theory. In practice, nevertheless, this view still exists.

Management needs help with this problem. Some management people need to be made aware that this is a problem which lies at the root of many of their other problems. Recalling the three jobs of management mentioned above, management *must* do all three with overemphasis on any one a very serious danger. As someone has said, if business enterprise is not run *for* society it will be run *by* society.[2] ". . . it is one thing to be sure that we will always have large-scale mass production and another to be equally sure that authority and responsibility for it will always rest on the familiar foundation of ownership, creditors, and management. There is nothing basic in our civilization to guarantee the permanence of this foundation."[3]

It is surely true that most accountants believe in the desirability of this foundation. If so, one of the present responsibilities of accountants is to help reinforce it. It can stand only on a basis of wide-spread mutual trust and confidence. There are at least two main ways the accountant can help to enhance this trust and confidence. One is through his audits and resulting opinion, since this adds reliance to the financial reports, *assuming* that the accountant so governs his conduct that society will place reliance on him. The other way is through his aid to management supplemental to the regular audit.

Although there are these two main ways an accountant serves, more usually the two will be combined rather than separate. Most audits include as an additional service some management counsel. Moreover, audit engagements may lead to separate engagements for other purposes, for example, to tax work or to systems engagements; or vice versa, such engagements may lead to audits.

Some accountants, particularly Kohler, think that supplemental services may become more important than audits. "The primary responsibility of the accountant of the future may well be interpretation rather than verification."[4]

The function which Kohler describes as "interpretation" could be called the "aid to management function," while "verification," which must include for outsiders some interpretation too, is the "sub-

[2] J. David Houser, *What People Want From Business*, McGraw-Hill Book Company, Inc., New York and London, 1938, p. 156.

[3] E. B. Wilcox, "Social and Economic Trends Affecting Accountancy," *Journal of Accountancy*, September, 1945, p. 179.

[4] E. L. Kohler, *Auditing, An Introduction*, Prentice-Hall, Inc., New York, 1947, Preface.

stantiation" involved in the audit function. The argument which will be presented here is that a good "audit," in the broad sense, should include both functions.

THE AID RENDERED BY AN AUDIT

An audit, in the narrow sense, with no extras, leading to rendering an opinion to accompany management's financial statements, is mainly of only indirect aid to management.

As to such an audit, management may feel, and rightly, that the accountant is merely checking figures which management already knows are right. Consequently, perhaps openly or perhaps unconsciously management may be resentful of the accountant. Management may feel that if the absentee owners, creditors, public, etc., would only see fit to rely on its word in its reports of stewardship, the added word of the accountant would be unnecessary. One answer to this is that, although the integrity of managers would usually be unquestioned, their objectivity would quite naturally be open to question. In this respect, the accountant's opinion is of direct aid to management as a reassurance to others that management is reporting fairly as to objectivity.

Another answer, however, is likely to appeal to management with more force. That answer is to provide extras with the audit, supplement it with aid to management as the circumstances allow.

Especially is this a better answer since some clients still need further education as to just what an audit does and does not accomplish, just what they are getting for their money. What is being considered here, of course, is the necessity for the accountant to sell the value of his services, a perfectly appropriate thing for him to do within the bounds of his professional integrity and dignity.

An example of the need for education of clients is the fact that misunderstandings sometimes arise in connection with the representation letter (covering inventories, liabilities, etc.) which a client is asked to sign. Misunderstandings may arise as to almost any part of this letter, but will perhaps most frequently arise in connection with the statement to the effect that we understand that your audit is on a test basis and would not be expected to disclose all irregularities, should any exist.

Apparently the fact that an auditor cannot guarantee to find all irregularities comes as a surprise, almost a shock, to some clients. What then does the auditor do? This seems to be the unspoken question.

In addition to being an illustration of the need to educate clients as to the scope and limitations of an audit, this is also an example of why it is necessary for the organized profession to engage in such education as a part of its public relations program. In that way, it can be made clear that the limitations are overall and do not reflect so much on the individual firm.

One added service which an accountant can sometimes render, which also may be very effective in such client education, is attendance at directors' meetings, particularly the one at which the annual report is being presented. It would generally be quite proper for an accountant to indicate to his client that he is available for attendance at this meeting and will be glad to answer any questions which may be raised about the audit and report.

To impress management that the enterprise is receiving a good audit and in order to take the emphasis off the limitations which are at best inherent in an audit, extra services beyond the audit are certainly helpful. Sometimes, however, when the client has not been sold on the value of services beyond auditing, the accountant may feel that doing enough work in order to render an opinion is all he can afford. If

a principal gives the man sent out on the job a time limit to conform to exactly within the fee, he will, of course, do enough work to justify an opinion even if he runs over the budget, but he will do nothing else. Battling a time budget is on occasion one of the really uncomfortable parts of public accounting. And clearly it is one of the reasons why aid to management, beyond the rendering of an opinion, sometimes just is not present.

It would appear then that a dilemma is present. Extra services would strengthen the audit, but who will pay for them? Outside forces, the fact that "owners and creditors and management are too far apart and their interests are too complex to be satisfied by looking over each other's shoulders,"[5] have convinced corporate management that an audit is needed. But if management has not been sold on the possibilities of services beyond the audit, based on facts gathered with the audit, what is going to sell him? Probably the best way to break the dilemma is for the auditor to give "good measure" within limits, even if there has been no prior arrangement. And many accountants do.

For example, a standard practice of writing the client an internal control letter during the course of, or at the conclusion of, each audit is very worthwhile "good measure." Very few things please a person more as a customer or client than to receive useful services which he did not expect and for which he is not directly asked to pay.

Intention to render such extra services is a further reinforcement of the need for more interim rather than so much year-end work. While it is true that many of the facts both for business counsel and as evidence to support the auditor's opinion can be gathered simultaneously, the rush of year-end makes it unlikely that much real reflection will be possible on many matters of business counsel.

NEED FOR COMPETENT PERSONNEL

Now having discussed that the accountant should strive to give aid to management supplemental to or combined with the audit, it is appropriate to consider limitations. Worth considering is the proposition that the typical staff member of a firm should undertake very few services beyond the audit. The reason is that, if he is not competent to do a job well, it is his responsibility not to try, rather than to bungle the effort. After all, who is the typical staff member? He may be a seasoned veteran of business with broad economic training, with broad experience in the operations of business enterprise, and with an objective viewpoint so that he can contribute valuable aid to management. Or he may be a junior or semi-senior not long out of college, a bright young man, but still lacking broad experience. Or he may be between these extremes. The problem of competent personnel is very critical here. Especially on audits of large enterprises where this extra service would have the largest economic and social effects, the proportion of relatively inexperienced personnel is likely to be greater than on smaller engagements. There are two good reasons for this. One is that, although detailed audits have long since been generally abandoned, in a large audit there is still much detailed work which can be done by relatively inexperienced personnel. This does not at all endanger the validity of the opinion since there is supervision by experienced personnel and substantiation of major items by experienced personnel. On the other hand, the second reason is that the smaller enterprises do not generally have personnel of their own of the quality of that of the large, and thus there is a greater demand on the accounting firm to make up this lack in order to be of greater

[5] Wilcox, *Loc. cit.*

service. This lack of the best type of personnel to do the best type of job is doubtless a perennial problem.

A consideration which makes the training of more competent personnel all the more important to the individual firm is that failure to give services beyond the audit function could even result in loss of clients. Since management has so much to do with the choice of the auditor, such failure could tend to influence management to shop around for the lowest fee estimate for provision of the opinion. Differences in quality of work are more likely to show themselves to management in aid to management beyond the audit than in the audit itself. This price approach by management would put a pressure on the accountant. The profession can withstand such pressure by maintaining and making more uniform the standards of quality in audits. But also some of this particular pressure can be forestalled by particular firms by providing valuable aid supplemental to the audit.

MAINTENANCE OF INDEPENDENCE

This raises still another important issue. The conclusion above is that the audit function may be strengthened by supplemental services, in a sense, by joining the management team. But there is another dilemma here. There is a possibility, too, that aid to management improperly rendered may actually weaken the audit function. Clearly that would be true if the independence of the accountant were impaired, or thought by other interests to be impaired.

One practical example of this possibility might arise in connection with inventory taking. One required auditing procedure is, of course, that the accountant observe the physical inventory if it is a substantial factor in the financial position. Let us suppose that in a situation where inventory is material the management asks the accounting firm to count a substantial part of the inventory instead of merely observing the count and taking test counts. Management's reason might be that its personnel was needed for other pressing work. Let us further suppose that the accounting firm would need only a few more men to do this job, since there had already been a decision to make substantial test counts because of certain inventory control weaknesses.

Here is an opportunity to be of considerable service to a client. The issue, nevertheless, is that if the accounting firm agrees to take the count, it would put itself in a position in which it would, to a substantial extent, certify as to the fairness of its own figure, instead of the fairness of the representations of management. This, of course, raises the question of objectivity and independence and the related question of whether or not a qualified opinion would be necessary.

Another matter related to independence is that the accountant must be extremely careful not to seem to be an advocate of management. He must not be the advocate of any single party at interest. This has particular significance in connection with labor relations, but obviously it is significant for any situation where reliance on the financial reports is at stake.

Moreover, the full significance is that the accountant's performance on each engagement, each of his actions, and each of his words which reach public ears, all have impact on his reputation. It is therefore argued that independence cannot be a concept applying only to a particular audit, or even to the auditing function, but is an overall concept.

In order to attempt to make that point clear, following is a statement implying the relatively narrow concept of independence, which the writer is suggesting is inadequate for the accountant's fullest social role:

> "It is indispensable to the profession that public accounting be not restricted to public au-

diting. Accountants, particularly the smaller firms, are frequently employed on the basis of their skills as accountants, rather than on the independence of their viewpoints as auditors. This is entirely proper, and should not be jeopardized. The skills so made available are highly useful to business and are not obtainable elsewhere."[6]

This is an excellent statement, except that the concept of "independence of their viewpoints as auditors" implies that independence is vital only in direct connection with auditing engagements. Just as, "It is indispensable to the profession that public accounting be not restricted to public auditing," the writer believes it is likewise indispensable to the profession that the concept of independence be not restricted to public auditing. As Maddrea says, "Unless a constant attitude of independence is maintained on all types of engagements, it may be difficult to explain our position to those outside the accounting profession."[7] It just does not seem reasonable that the accountant can convince outsiders that he is independent as to audits, if he is obviously not independent as to other services, tax work, for example.

Sometimes this danger of detrimental effect on independence may arise apart from engagements. It may arise in connection with public issues, for example, income tax legislation. Certainly it is appropriate for the accountant to take a stand on public issues. As a matter of fact, it is his duty to do so when the issues relate to technical points on which he is competent. Clearly, nonetheless, he must beware of advocacy of the "business viewpoint" as against other interests. No doubt it would be fatal to the accountant if he should become unsympathetic toward the business or management view. An equal danger, nevertheless, is fatality of his independence because his sympathy may destroy his objectivity.

In other words, trying to improve free enterprise by explaining financial facts in the working of the economic system is one thing, but being the advocate or spokesman for the business interest, or management interest, is sometimes another. If the accountant should become known as the "advocate of business," where would be his independence? Without independence the opportunity for development of his arbiter function, which could increasingly remove friction from the economic and social system, would be destroyed. Already in the minds of some he is considered to be "management's tool," and to that extent reliance on his opinion is weakened.

THE QUESTION OF WHO ELSE IF NOT THE ACCOUNTANT

Nevertheless, despite this advocacy of danger, the writer feels that the accountant's road of least resistance, most reward, and best opportunity for service, leads to joining, in a sense, management's team. The question may be asked, if not the accountant who else will provide the services management needs? A related social question is that of whether there would be needless duplication of efforts if someone else had to be called in because of lack of initiative, lack of training, or some other lack of the accountant.

This question of "who else" has two aspects. One has to do with possible competition with others who may be able to provide substantially the same services as the accountant. The most dramatic illustration of this is competition with lawyers in connection with tax practice. There is also competition with management engineers and others in what seems to be a growing field of business consultants. Probably the best way to meet competition is to render

[6] Marquis G. Eaton, "Comment on Bulletin No. 23 of the Series on Auditing Procedure," in *New Responsibilities of the Accounting Profession*, American Institute of Accountants, 1948, p. 9.

[7] T. Grayson Maddrea, "Performing Constructive Work Does Not Destroy Independence, Should Not Interfere with Opinion," *Journal of Accountancy*, October, 1950, p. 327.

more and better services at the same or less cost than can be done by competitors. This is good practical procedure, and it is certainly the best possible social procedure.

The second aspect of "who else" is more important socially than the first. It includes the situations in which for practical reasons the accountant is virtually the only qualified outside help that management has. In smaller communities this is the usual situation. Even in larger communities audits and tax practice create a sort of "entering wedge" so that as a matter of habit clients learn to rely on the accountant for counsel on all sorts of business problems. Consequently, in many situations there may be no one else who will advise the client on systems changes, cost accounting, better reporting, labor relations, tax planning, profit planning, and other operating and planning matters. To the extent the accountant is not competent on some of these matters, his clients very likely will suffer.

CONCLUSIONS

In summary, the following tentative conclusions are suggested in considering the accountant's best social role in aid to management:

1. In order to help preserve free enterprise, the accountant may be a useful agent of self-policing to forestall policing by government.
2. Independence and reliance of the public on the accountant's independence will need to be strengthened if the accountant is to be fully effective in such a self-policing role.
3. In helping management do a "better job," the accountant who is an acknowledged expert with "figures" may well consider the need to become more conscious of how figures relate to people.
4. The audit only, without extra services, is of little direct aid to management, although it is of course valuable to outsiders.
5. If the accountant is continuously to expand his services beyond auditing, the need for more competent personnel is one of the most serious problems.
6. In aid to management, direct or indirect, the accountant must be constantly on guard against becoming identified as an advocate of management.
7. Finally, the accountant is not without competition, but for many services it would be wasteful duplication if others should have to be called in, and in some situations no one else is available. The responsibility, therefore, falls on the accountant to equip himself as fully as possible for aid to management beyond the audit.

PROBLEMS IN EXPERIMENTING WITH THE APPLICATION OF STATISTICAL TECHNIQUES IN AUDITING*

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BEFORE statistical sampling techniques can be applied to any area, a clear statement of the purpose of sampling must be developed. This statement of purpose is essential for the determination of the alternative decisions from which is to be made, of the criteria according to which the appropriate decision is to be chosen, and of the relevant statistical model for the population under study. Problems which arise in this initial stage may be extremely difficult ones. This paper will discuss some of the problems of this initial stage in introducing statistical techniques in auditing, which must be solved before the more technical statistical problems, such as determination of the optimum sampling procedure, necessary sample size, and the like can be studied.

Auditing has been defined as "the systematic examination and verification of the accounting records, vouchers, and other financial and legal records and documents of a private or public business organization. . . in order to ascertain the accuracy, integrity, and authenticity of those records and documents. . . with the intention of presenting fairly the financial condition at a given date and the results of operation for a period ending on that date. . ."[1] Sampling is used extensively in auditing—for instance, in verifying transactions and in confirming balances of accounts receivable. In view of this extensive use of sampling—or test-checking, as it is called by the auditor—it was natural that the suggestion was made that statistical methods be employed by the auditor in determining his sampling procedure and in drawing conclusions from the sample results. Many articles have been written on this subject in recent years, although actual experimentation in the area of applying statistical techniques in auditing has been infrequent. In this connection, it is important to distinguish between sampling in auditing and sampling of accounting records in general. In the latter area, some interesting results of the usefulness of statistical sampling techniques have been reported—for instance, in sampling accounting records to determine the distribution of telephones by type of apparatus and to estimate inter-line charges for l.c.l. freight travelling over two railroads.[2] Problems of this nature are relatively clear-cut when compared with those encountered in auditing.

INADEQUACY OF SOME EXPERIMENTS IN THE PAST

A few experiments in the application of statistical sampling methods in auditing have been reported. In one, samples of inventory extensions and footings were taken from inventory lists for a number of stores to serve as a basis for making a decision about the proportions of incorrect extensions and footings existing in the records. The true error rates were known

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[1] Holmes, Arthur W., *Auditing* (Chicago: Richard D. Irwin, Inc., Third Edition, 1951), p. 1.

[2] Neter, John, "Accounting Data for Control Purposes," *The Controller*, August, 1953, p. 370.

for each store; in each instance, they were less than the specified unsatisfactory error rate of the sequential sampling plan. For 20 out of 21 stores, sequential sampling led to the conclusion of acceptance.[3] In another case, inter-line freight settlements for 4 months were sampled in order to make decisions about the proportion of settlements submitted for incorrect amounts in each month. The true error rates for each month were again known; in each case, they were greater than the specified unsatisfactory error rate of the sequential sampling plan. Sequential sampling led to the conclusion of rejection in each of the months.[4] A moment's reflection will indicate that these experiments do not shed any significant light on the problems arising in the application of statistical methods in auditing; rather, they constitute an empirical demonstration of the operating characteristics of the sampling plans used. The reason for their lack of significance is that the experiments do not establish the relevance to the purpose of the audit of the error rate concept employed, of the choice of the particular satisfactory and unsatisfactory error rates, and of the choice of risks of incorrect decisions.

In another set of experiments, a simple random sample and a sequential sample of payroll checks were selected from the same population to serve as a basis for making a decision about the proportion of checks whose amount is incorrect.[5] The experiment indicated that the sequential sample was smaller than the simple random sample and that both led to the same conclusion of acceptance. The same type of experiment was also conducted in connection with water-meter records; again the sequential sample was substantially smaller and led to the same conclusion as the simple random sample. These experiments also did not really attack any crucial problems arising in the application of statistical methods in auditing for the same reasons as mentioned above in connection with the other experiments cited. Rather, they would have demonstrated empirically that sequential sampling often requires a substantially smaller sample size than single sampling, where both plans provide the same protection against incorrect decisions, if the single sampling plan in the experiment had been selected to provide the same protection as the sequential sampling plan.

It is noteworthy that each of these experiments dealt only with one small area of an audit—for instance, inventory extensions and footings, or payroll checks. This approach of working with an isolated phase of an audit was probably followed because it is much simpler than an attempt to tackle the audit as a whole. There are, however, some crucial problems which are not faced when one studies only a small segment of an audit. In the first place, the various areas of an audit are not small independent segments of the whole, but generally are inter-related. Secondly, one must know clearly what the purpose of the audit is and how a special phase of the audit relates to the whole before one can intelligently discuss the problems of a specific area of an audit.

ALTERNATIVE APPROACHES TO THE PURPOSE OF AN AUDIT

Thus, before any attempts to experiment with the use of statistical techniques in auditing can be made, one should have a concrete notion of the purpose of the audit. Here, already, difficulties arise in reconciling differences in views between auditors, and in comparing objectives stated in gen-

[3] Vance, Lawrence L., *Scientific Method for Auditing* (Berkeley: University of California Press, 1950), pp. 47–51.

[4] *Ibid.*, pp. 52–54.

[5] Smith, C. D., "Three Cases Where Scientific Sampling by Formula Saved Time in Test Checking," *The Journal of Accountancy*, July, 1952, p. 64.

eral terms with concrete actions of the auditor. We shall consider in this paper only the usual type of audit, not any special-purpose ones. According to the usual audit report of certificate an auditor expresses an opinion, on the basis of the audit, as to whether the balance sheet and statements of income and surplus present fairly the financial position of the company as of a given date, and the results of its operations for the period then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year. The "fairness" of the financial statements is, of course, a concept which permits much leeway in interpretation as to the purpose of the audit. One can, for instance, relate the fairness of the financial statements to the specific dollar figures appearing in the statements. Thus, the purpose of the audit from this point of view would be to ascertain whether the figures appearing in the statements are reasonably close to the figures which would be obtained if a complete examination of all transactions and records, including any necessary corrections, were made. It would appear that an auditor takes this point of view to a large extent. As one prominent auditor has stated: "The work of the independent public accountant is guided by one central, all-pervading purpose —to tell the truth about accounts."[6] In line with this point of view, the auditor generally scrutinizes transactions involving large dollar amounts more thoroughly than those involving small dollar amounts.

Another approach to the determination of the fairness of the financial statements —one which differs in emphasis from the first one but which is not entirely distinct—is in terms of the effectiveness of the process of internal control in carrying out basic company accounting policies and standards. Internal control is here used in a general sense, encompassing all of a company's procedures and systems designed to assure an accurate recording of the accounting transactions. Included in this broad concept of internal control would be such areas as organizational structure and division of functional authority, as well as more specific control systems and procedures, type of personnel employed, and the like. From this second point of view, emphasis is placed upon an examination of the basic company accounting policies and of the effectiveness of the internal control process in assuring the accurate recording of transactions in accordance with these policies. As one auditor with this view has stated, " . . . at least in large part, the auditor must, on logical grounds, realize that nearly all of his tests . . . actually represent a challenging of the operation of the internal control system."[7] Still another approach to the determination of the fairness of the financial statements encompasses both points of view just presented.

The importance to a statistician of determining precisely what the purpose of the audit is lies in the fact that the nature of the statistical model to be used is dependent upon the purpose of the audit, or, more precisely, upon the purpose for which sampling is employed in auditing. For instance, the population under study may be finite if one point of view is adopted or infinite if another approach is used. It may, therefore, be worthwhile to study briefly what the auditor does in order to see what can be learned from his actions about the purpose of the audit and of sampling in auditing. Also, this will serve to point out some of the complexities of an audit. An auditor, in connection with an account

[6] Montgomery, Robert H., *Auditing* (New York: The Ronald Press Company, Seventh Edition, 1949), p. 11.

[7] Trueblood, Robert M., "The Use of Statistics in Accounting Control," *N.A.C.A. Bulletin*, July, 1953, p. 1569.

such as cash, does not merely determine the amount of cash on hand as of a certain date but also examines to see what it should be. The count of cash is relatively simple; so is the count of investments on hand. But these totals may not be the correct balances. For instance, the investments held by a company may not all belong to it; some may be just collateral. In evaluating what the balance should be, an auditor may examine the transactions affecting the account, either on a 100 per cent or on a sample basis.

This pattern, however, does not fit the examination of all accounts. An auditor may rely on testing the effectiveness of the internal control procedures even in the determination of the balance in an account—that is, excluding any checking of transactions. Consider, for instance, the inventory account, Conceivably, the auditor could count, measure, or weigh the inventory and price it, just like cash. This would, of course, often be a tremendous undertaking. Instead, the auditor usually observes the inventory-taking process including the system of control exercised—concerning which he may have been consulted—and does some sampling to check on the accuracy of the quantities recorded. He also uses sampling to check on pricing and other various clerical operations in the process of inventory valuation. Thus, in the determination of the value of inventory the auditor generally evaluates on the basis of a sample the effectiveness of the company's control procedures in inventory-taking rather than estimating the value of the inventory which he would have obtained if he had conducted a 100 per cent examination. The auditor also conducts an examination of transactions to check if items included in inventory should be and if items which should be included actually are in the inventory.

In examining the balance in accounts receivable, the auditor generally selects a sample of debtors and confirms the book balances of their accounts by corresponding with them. While this may be viewed as a basis for estimating the total balance in accounts receivable which a 100 per cent confirmation procedure would establish, it can also be considered as a basis for a check on the effectiveness of the internal control process.

In testing routine transactions, which, of course, affect what the various balances in the accounts should be, the auditor usually employs samples to examine footings, postings, vouchers, etc. This verification work by the auditor can be viewed largely as a check on the effectiveness of the internal control process, although minor errors are often disregarded by him in line with the approach which emphasizes the evaluation of the correctness of the dollar balances in the financial statements.

Thus, it appears that the auditor's work, in large part, can be viewed either as indicating the purpose of the audit and of sampling in the audit to be a checking on the correctness of the figures in the financial statements, or a checking on the basic company accounting policies and the effectiveness of the internal control process in carrying them out, or a combination of the two.

PROBLEMS IN APPLYING STATISTICAL SAMPLING METHODS FOR VERIFYING ACCOUNT BALANCES

Let us explore each of these possible purposes of sampling in the audit further to study some of the problems which would arise with the application of statistical sampling methods in the audit. First, suppose that the auditor desires to verify the dollar balances in the financial statements. From that point of view, the audit of, say, the inventory valuation would become a problem of estimation. On the basis of a sample of the inventory, the

auditor would estimate the valuation which he would have obtained if, using the same care and procedures as in the sample, he had conducted a 100 per cent examination of the inventory. If a choice is to be made between the fairness or unfairness of the book figure, one would have to decide in advance how much the book figure can differ from the one which would have been obtained with a 100 per cent audit before it is concluded that the book figure does not present the balance fairly. One would also have to specify in advance the maximum probabilities of making incorrect decisions. These would then determine the sample size, depending upon the sampling plan, and the appropriate decision-making rule. The above discussion has assumed that a choice must be made between whether the book figure is a fair or unfair statement. It may be, however, that an auditor might wish to formulate additional or other alternatives in which case these would have to be incorporated into the decision-making procedure.

It may appear from this illustration that there would not be many problems with this approach. This, unfortunately, is not the case. First of all, the illustration dealt only with the sampling of the physical inventory on hand and did not go into the problem of determining what should be on hand. This problem requires an examination of transactions. Can these be checked in lieu of sampling the physical inventory, or, more generally, can the audit be undertaken simply by means of an examination of recorded transactions? To consider all of the transactions recorded during the period as the population under study is inadequate for a number of reasons. An audit of transactions may reveal what the balances should be on the basis of the recorded transactions but not what the balances actually are. Thus, an estimate of the value of inventory on hand based upon a sample of the inventory would be necessary, even if another estimate of the value of inventory which should be on hand had been made from an audit of sales and purchase transactions. The difficulty is that all transactions which should have been recorded are not necessarily recorded. For instance, an undetected theft of some inventory would not be recorded in sales and purchase transactions. Similarly, if a sales clerk fails to ring up a sale and keeps the cash, an audit of recorded sales and purchase transactions will not detect the decrease in inventory. Therefore, an audit of recorded transactions is not the equivalent of an audit of transactions which should have been recorded.

Furthermore, transactions may have been recorded in a period other than the one during which they should have been. For instance, an expense chargeable against 1952 may not have been recorded until 1953 and charged against that year. For this reason, auditors examine transactions near the end of the accounting periods and beyond to see if the transactions have been recorded in the proper period. This problem could be handled by defining the population under study as consisting of all recorded transactions since the beginning of the accounting period, assuming that the previous period had been audited. Thus, transactions recorded since the end of the period under audit but before the audit began would also be included in the population of transactions under study.

It should be noted, however, that a sample from this population will simply lead to an estimate of what would have been obtained if a complete audit of all transactions recorded since the beginning of the accounting period under review had been undertaken. The problem of unrecorded transactions still persists. At this embryonic stage of development in the use of statistical techniques in auditing, it is dif-

ficult to visualize how a listing of all possible transactions can be constructed so that probability sampling can be used to disclose the significance of unrecorded transactions. An auditor does have some auditing techniques in addition to examining transactions recorded after the end of the period under review, such as a circularization of known creditors, to locate transactions which should have been recorded. In large part, however, he must rely on the effectiveness of the internal control system to record all transactions. For instance, a store as part of its system of internal control to assure that all sales transactions are recorded, may retain an outside agency to check whether or not sales are rung up by the sales clerks. Therefore, even if the auditor wishes to approach the audit from the point of view of verifying dollar balances in the financial statements, he is still relying to some extent on the effectiveness of the internal control system in order to make the transition from an audit of recorded transactions to an audit of all transactions.

There are many further problems in using statistical sampling procedures in auditing if the purpose is to verify balances in the financial statements. For instance, what criteria are to be used in deciding when a statement does not fairly present the situation? When is a book figure reasonably accurate? Are decisions about the fairness of the statements to be made in terms of individual accounts, in terms of groups of accounts, such as current assets and current liabilities, or in some other way? It should be noted that from this point of view of the purpose of the audit, only the dollar amounts affect the decision whether the statements fairly present the situation; the nature of the causes of the discrepancies between the book and the audited figures is immaterial.

Still other problems will arise with this approach when one is ready to consider specific statistical sampling procedures. Since any transaction affects more than one account under the double-entry system of bookkeeping, estimates of the balances in the accounts based upon a sample of transactions will be interrelated. What then is the most efficient method of sampling? While this may be a challenging theoretical question which will require a great deal of exploration into the nature of populations of accounting transactions, it would seem that there is little need at this moment to explore it until the more fundamental question of a suitable formulation of the purpose of the audit is settled.

PROBLEMS IN APPLYING STATISTICAL SAMPLING METHODS FOR EVALUATING INTERNAL CONTROL

If the purpose of an audit is to evaluate the basic company accounting policies and the effectiveness of the internal control system in carrying them out, emphasis would presumably be placed upon the internal control system as a process. For if it were to be evaluated from the point of view of the accuracy of the balances appearing in the particular financial statements under examination, one would, in effect, be using the previous approach of verifying account balances. The review of the internal control process has a number of significant implications. The recorded transactions during the period under study themselves constitute a sample from this point of view. Thus, any conclusions drawn from a sample of transactions would relate to the process and not necessarily to the particular financial statements under review. Hence, if standards of performance for the internal control process were to be set with reference to the effect on financial statements, the effect on financial statements in general rather than upon a particular set of statements would become significant. This would mean that the implications of errors become important. For

instance, a transposition may have been made in recording a transaction from the correct amount of, say, $112,531.12 to $112,513.12. From the point of view of the effect of this error on the particular financial statements under study, the $18 difference would not be serious for a concern of any size. From the point of view of evaluating the effectiveness of the internal control process, however, the transposition error would be a significant clue because the internal control process did not find the error and correct it. If an $18 transposition error can remain undetected, so may an $18,000 transposition error in a transaction undergoing the same process of internal control as the earlier one. Similarly, the fact that a voucher did not have proper authorization may not be important with respect to its effect upon the particular financial statements under study but still may be an important clue concerning the effectiveness of the internal control process. Thus, if the purpose of sampling in the audit is to evaluate the effectiveness of the internal control process, emphasis will have to be placed upon the various causes of errors in the recording of transactions and their frequency of occurrence.

Investigations would therefore have to be carried on to determine those errors in the recording of transactions which are of significance for the evaluation of the effectiveness of the internal control process. Presumably, the relevant types of errors will differ for various types of transactions. For instance, an incorrect date may be highly important in connection with cash transactions but probably not as important for withdrawal of office supplies from the stock room. Thus, investigations will have to be made to determine the various groups into which the transactions can be divided so that items in each group have essentially the same internal control problems. Since there are usually a number of relevant ways in which internal control can break down in the recording of a transaction, the problem of combining the various kinds of errors must be studied. That is, what is the most appropriate way of measuring the effectiveness of the internal control process for a group of transactions subject to the same internal control system? Devices, such as weighting the various kinds of errors, may be studied in this connection.

Further, an investigation would have to be carried on to determine whether decisions are to be made about each area of the internal control process and, if so, how they are integrated into the final rendering of the auditor's opinion, or whether a decision is to be made only about the process as a whole. In the latter case, a difficult problem may be how to combine the results from the various areas of the internal control process in order to get a significant measure of the effectiveness of the process as a whole. In either case, the problem of determining the alternative decisions from which a choice is to be made on the basis of sampling the transactions must be considered. Here again, a study of the causes of errors in the internal control process and their general effect upon the financial statements should be useful for determining what alternative decisions may face an auditor.

Still other problems of evaluating the effectiveness of internal control exist. To what extent does an examination of the effectiveness of internal control in one area of the accounts furnish information about the effectiveness of internal control in other areas? How is information from preceding audits about the internal control process utilized most fully in evaluating its current state?

The problem of setting standards for the performance of the internal control process is a crucial one, which has not yet been mentioned. A number of approaches

would probably have to be investigated. Standards might be set on the basis of a study of various causes of errors in the internal control process and their average effect upon the financial statements. A question may then arise whether the standards desired by an auditor are economically feasible to achieve. Another approach might be to set standards on the basis of the performance of the internal control process in companies where the process functions exceptionally well; that is, the standards would be set without direct regard to the implications on financial statements.

Problems of sampling procedures would be faced after some of the more basic questions have been settled. If the sampling of transactions is made from the point of view of evaluating the effectiveness of the internal control process, the problem would have to be explored whether sampling over time—that is, subdividing the period under study and sampling each sub-period—would be more effective in giving the type of information required to make a choice between the alternative decisions than sampling from the period as a whole. Sampling over time could shed information as to when the internal control process went "out of control" and thus furnish clues as to the reasons for this state and in that way guide the auditor in taking appropriate action. To the extent that the internal audit staff of a company provides such process control, not after months have elapsed but as the process is operating, the problem would have to be studied as to what is the most appropriate review by the external auditor of the process control and of the effectiveness of the internal control system.

It should be cautioned that the approach to the purpose of an audit through evaluating the effectiveness of the internal control process by means of sampling is probably only applicable to those types of transactions which occur often so that there exists, indeed, a process. Non-routine transactions would probably have to be handled separately if this approach is used. Part of the evaluation of the effectiveness of the internal control process would have to be a consideration whether transactions are recorded in the proper accounting period. This would necessitate that the process be examined not only for the period under study but for a subsequent time also.

Whether the auditor samples recorded transactions from the point of view of verifying account balances or of evaluating the effectiveness of the internal control system, he still may not obtain information about all transactions which should have been recorded. He depends upon aids, such as outside firms which check on whether sales clerks ring up sales and circularization of creditors to see if all liabilities are recorded, in order to draw a conclusion about the effectiveness of the internal control process in recording transactions which should be recorded. Whether this phase of the audit can be reduced to a probability sampling basis—namely, by being able to construct a listing of all possible transactions which can then be sampled with known probabilities to disclose the significance of unrecorded transactions—would appear to be a question to which no ready answer can be given at this time.

PROBLEMS IN APPLYING STATISTICAL SAMPLING METHODS WHEN PURPOSE IS A COMBINATION OF THE TWO APPROACHES

If the purpose of an audit encompasses both points of view discussed so far—namely, to verify account balances in the financial statements and to evaluate the company accounting policies and the effectiveness of the internal control system in carrying them out—an important problem which must then be explored is how

these two points of view are integrated into a suitable over-all statement of the purpose of the audit. Is the evaluation of the effectiveness of the internal control system, for instance, merely a substitute when a verification of the account balances is not feasible? What is the precise meaning of the auditing standard that there is to be a study and evaluation of the existing internal control as a basis for reliance thereon and for the determination of the resultant extent of the tests to which auditing procedures are to be restricted? Unless the purpose of the audit can be stated in such terms that specific statistical models can be constructed, it will be difficult to test the applicability of various statistical sampling techniques intelligently. A clear statement of the over-all purpose of sampling would be necessary to determine, for instance, if it is possible to make reasonable subdivisions of the audit for which one or the other points of view apply and to ascertain the specific purpose of sampling in the audit of each of them, the criteria to be employed in making decisions, etc.

While it appears that the points of view of verifying account balances and of evaluating company accounting policies and the effectiveness of the internal control system in recording transactions accurately are the key approaches to the purpose of an audit, judging from auditors' writings and actions, there may be other ones also. At any rate, a serious consideration of the purpose of sampling in an audit should precede any extensive study of the use of statistical sampling techniques in auditing. The purpose of sampling must be spelled out in such terms that one can formulate and investigate the merits of various statistical models, either to the audit as a whole or at least to parts of the audit. A study group consisting of auditors and statisticians may be an effective instrument for developing such a statement of purpose.

ALTERNATIVE PATHS FOR FURTHER RESEARCH

Once the over-all objective of sampling in an audit has been clearly delineated, research along two main lines may be undertaken on problems such as those mentioned previously. Special areas of the audit may be studied to determine the alternative decisions from which a choice is to be made, the criteria for making the decisions, the tolerable magnitudes of risks of incorrect decisions, and appropriate sampling plans. If such studies are made after an appropriate formulation of the purpose of sampling in an audit, they will be carried on within an integrated framework, not in isolation. The study of special areas of an audit seems to be the present approach of the Pittsburgh group; their results have been reported by Trueblood and Cyert, among others.[8] Once special areas have been studied, work could then proceed to consider the interrelationships between them and the problems of evaluating the over-all results. This approach has the merit of tackling simpler problems first before taking up the more difficult ones relating to the evaluation of the over-all results of the audit.

Another path for experimentation would be to study the general problem of the audit at once. While this may get to the crux of the matter right away, there is a serious question whether significant progress could be made along these lines until more is known about the problems in the various areas of the audit.

Little has been said about specific statistical methods to be employed in auditing. A consideration of this matter must await the development of a conceptual approach to the problem of auditing. Simi-

[8] See, for instance: Trueblood, *op. cit.*, pp. 1561–1571; Trueblood, Robert M., and R. M. Cyert, "Statistical Sampling Applied to Aging of Accounts Receivable," *The Journal of Accountancy*, March, 1954, pp. 293–298.

larly the general problem of balancing the cost of auditing against the benefits obtained probably cannot be taken up until the ground has been broken in the use of statistical methods in auditing. Once sufficient progress has been made so that specific statistical techniques can be considered, sight should not be lost of the element of human errors in auditing. The extent of these errors must be investigated along with the appropriateness of particular statistical techniques so that a balanced approach to the control of errors in the sample results can be taken.

To summarize: Sampling is used extensively in auditing, on the basis of which auditors make decisions. If experiments in the application of statistical techniques in auditing are to be made, they should be preceded by a suitable formulation of the purpose of sampling in an audit such that statistical models can be constructed either for the problem as a whole or for definite parts of it. Once this has been done, the relative merits of various statistical models can then be investigated. The attempt to apply the statistical point of view and statistical sampling techniques to auditing may greatly aid the further development of audit concepts and techniques to enhance their effectiveness and efficiency.

THE OBJECTIVES AND MATERIAL CONTENTS OF ELEMENTARY ACCOUNTING COURSES FOR ACCOUNTING MAJORS AND OF COURSES FOR MAJORS IN FIELDS OTHER THAN ACCOUNTING*

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THE OBJECTIVES and material contents of an accounting course depend upon the emphasis to be placed on accounting in the school. Some liberal arts colleges offer courses in elementary accounting as a part of a well-rounded program. In other schools, this type of accounting is offered as a segment of the preparation for students going into the business world. There are still other schools in which basic accounting is given as the foundation for building professional accountants.

It would not be possible to give the objectives nor discuss the material contents of accounting courses for all types of colleges at the same time. Therefore, the discussion will be divided into three parts based on the three types of schools as previously noted.

First, accounting may be a part to complete the whole of a balanced curriculum. In this case, accounting should be highly integrated with other courses on the various fields of study. In a course of this type, emphasis might best be placed on the individual needs for some practical accounting knowledge to enable the student to live more successfully in a business, social, and economic community.

As an accountant, you readily see the necessity for a course in accounting for each individual, but to persons other than accountants, this has usually not been too clear. Take the determination of periodic income, for example, a problem constantly facing accountants. Today, however, this is a problem for many people who are not accountants and never intend to be! Our economy has grown and become so complex that there are very few adults who are not concerned with income determination from a personal and perhaps a business standpoint as well. The income tax law has caused many persons to become aware of the necessity of keeping records and having full information regarding periodic income and expenses. Thus, every individual, no matter how far his major interest is removed from accounting, should have some basic knowledge of record keeping and common business transactions.

Therefore, if courses in accounting are taught in colleges where the aim is to supplement the students' major interest, which is in some school other than the School of Business, a broad, but not too deep coverage of many points might be best. The course should teach students to translate commonplace business dealings into business transactions and to keep simple records thereof. Even in the very early stages, the student could be shown

* Presented at the Sixth Annual Meeting of the Southeastern Section, American Accounting Association, University of Florida, on May 8, 1954.

the advantages of double-entry over single-entry record keeping. A course of this type has been very aptly described and discussed in a recent article in the ACCOUNTING REVIEW by Dr. Robert H. Van Voorhis.

The following points are suggested for your consideration as items to be covered in the course:

1. History of accounting and record keeping—this could cover one or two class periods—merely hitting the high points in the development of a system of record keeping.

2. Personal records—show the student how to organize and keep records of his own personal income and expenses. This should be very simple yet based on double-entry accounting methods.

3. Social or community organizations—enlarge on the above idea so that the student would be able to set-up and keep a set of records for a social or community organization.

4. Service organizations—the student could then be introduced gradually to service organizations and, perhaps, retail establishments on an individual proprietorship basis.

5. Income taxes—the length of the course would determine if, and to what extent, income tax could be covered in the course. It would certainly be to the student's advantage if he could be taught to make out a very simple tax return for himself from the information sent out by the Internal Revenue Department with the tax return. It would also be to his advantage if he could be taught when *not* to make out his own tax return and *where* to seek help at such time.

6. Use of accounting—during the entire course, accounting should be thoroughly integrated with other fields of study in the school. Stress should be placed on accounting as a working tool for everyone—not just accounting majors.

7. Projects—if possible, projects should be developed for each student individually according to his major interest.

The title to be given to a course of the type herein discussed should be given careful consideration. There should be some definite differentiation between this course and regular accounting courses. Here are some suggested titles: "An Introduction to Business Transactions," "What is Accounting?" "A Preparatory Course in Accounting," or "Accounting in Everyday Life." At any rate, the student should not get the idea that he will be an accountant after having had only this course.

The second type of college to be considered is one which has a School of Business where accounting is taught as a technical tool to be used by students majoring in one of the various fields of business. There are differences of opinion among both students and faculty on the advisability of having two types of courses: one for accounting majors and one for non-accounting majors. Personally, I have not found that separate courses are advisable. Of course, some colleges offer special courses in accounting for engineers, for example, but these students are not in a school of business and are not under consideration here.

What are some of the *advantages* of having separate courses for accounting and non-accounting majors in a school of business?

1. The student who is not majoring in accounting often feels that he is compelled to spend too much time on accounting (in the regular accounting course) and, consequently, not enough on his major subjects. Too, he often says that he is not going to be an accountant, so why should he learn all the intricate details required of an accounting major?

2. If a class consisted only of accounting majors, greater progress might be made. A class is often slowed down because the

necessity of constantly repeating some information for students who are not too interested in accounting.

What are some of the *disadvantages* of separate accounting courses for accounting and non-accounting majors?

1. The course for the non-accounting major is likely to develop into a reading course and be a "watered-down" version of accounting.

2. Any person in any field of business needs a good background in accounting. As accounting is the "language of business," a business man is definitely handicapped if he is not thoroughly familiar with the basic ideas of accounting as usually given in accounting I and II.

3. A student taking beginning accounting often has not decided on his major. Too, students sometimes change their majors from one field to another within the School of Business. If there were two different types of courses given, a student might have to take the second type if he changed from another field to accounting.

4. By having accounting and non-accounting majors in the same class, there is likely to be a broader analysis of accounting. That is, accounting is not an isolated study but one closely connected with every field of business. Ideas of students majoring in different fields of business should be beneficial to all.

The question will now be left with you as to whether a single or separate courses should be given to students within the School of Business.

The third type of college to be considered is one where beginning accounting is taught as the foundation for professional accountants. The contents and objectives of the regular beginning accounting course can be discussed each year with renewed interest as there are new teachers coming into the field with different ideas, students entering school with different backgrounds, and changes in our economy presenting new problems.

There are several excellent texts in beginning accounting with which all of you, I am sure, are thoroughly familiar. Therefore, rather than try to itemize the points which should be stressed in beginning accounting, a contrast will be made of some of the major factors which are handled differently by different authors.

First, accounting texts differ in the point of inception of the accounting cycle to which the student is first introduced. This has been referred to as the "deductive" vs. "inductive" method. A student may approach the financial statement first and then be shown how the statements have been derived. On the other hand, the approach may start with entries for business transactions and work towards the financial statements. No matter at what point you start, the average beginning student feels that he has been thrown in the middle of a pond of ice water without his overcoat. Both of the above named methods are used today but there seems to be more weight on the statement approach.

Second, there is difference of opinion on the type of business organization which should be studied first. Some texts present information regarding the individual proprietorship first and work towards the more complicated corporate form, the idea here being that the student is more familiar with the individual proprietorship and, therefore, it is easier for him to learn.

The other approach discusses the corporate form first and single proprietorship later. Accountants who favor this approach often argue that the corporate form is more difficult but once the student understands it, very little time will have to be spent on studying the individual proprietorship. Too, it is sometimes said that if the individual proprietorship form of organization is studied first, a student is

so indoctrinated with this idea that it is extremely difficult to change his concept of the owners' equity section. Another important factor is that the large corporate forms of organizations employ many of the students who graduate as accountants, so there should be some concentration on the corporate form.

Third, another controversial point is whether a beginning student should be taught only *one* method or *all* acceptable methods of recording transactions. For instance, in recording prepaid expenses, should the student be shown only one method and learn that way thoroughly or should he be shown a couple of methods? In the first case, if only one method is presented, the student is likely to get the impression that there is only one way to handle the transaction and all other methods are wrong. In the second case, where alternatives are presented, the student may confuse the methods and come out with a third method—a combination or conglomeration of the first two and purely original in nature!

These are only a few of the many factors which have to be decided by each instructor individually as he teaches beginning accounting courses.

In the material presented herein, no conclusions have been reached but several points have been called to your attention in the hope that you will analyze both sides of each point, if you have not already done so. However, in closing, I would like to leave two questions with you for your consideration:

First—Should there be offered a preparatory course in accounting? If so, should it be on a non-credit, credit but non-compulsory, or credit and compulsory basis?

A course of this type could be set up similar to the one presented in the first part of this paper. That is, a course which anyone in college could take but which would be especially valuable to students who expected to major in accounting but had never had a course in bookkeeping or accounting nor any accounting practice. Failures in beginning accounting courses are high. *Is this necessary?*

Second—Is it the *contents* of our accounting texts or the *written objectives* of our courses that determine in the final analysis the student's ability to grasp accounting, or is there still another even more important factor to consider—the *accounting instructor?* The objectives and contents of a course may be set to attain very high standards of work but whether or not the goal will actually be attained depends on the accounting instructor. The interpretations placed on the standards by an accounting teacher depend a great deal on his background. Make a survey of your own teachers of beginning accounting—are they just as familiar with the historical, theoretical, and practical aspects of accounting as your teachers of the advanced courses? Does the instructor teach the students how to study accounting and then act as a guide in analyzing and solving accounting problems in a logical manner? Is the instructor really interested in teaching accounting, not as just a means of making a living, but of actually helping students acquire a basic knowledge of accounting which will serve as a firm foundation for the other courses which follow?

TEST-CHECKING AND THE POISSON DISTRIBUTION

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THIS ARTICLE contains an explanation of a simple and quick method (no combinatorial calculations required) of developing probabilities with which to arrive at an objective evaluation of the sufficiency of evidence needed to support an auditor's opinion. The reliability of probabilities derived from the Poisson distribution and two methods of using Molina's "Cumulative Terms of the Poisson Formula"[1] are presented in outline form. The purpose of the article is to suggest to the auditing profession, internal and external, the manner in which Molina's tables of probabilities can be used.

The use of the Poisson distribution will eliminate three major obstacles of probability utilization:

1. The necessity of making laborious and tedious combinatorial probability computations will be eliminated.

2. The Poisson distribution permits a high degree of flexibility. The auditor can vary easily and quickly the confidence limits or probabilities of a testing plan. The use of published tables would not permit the same high degree of flexibility because the confidence or probability limits of published tables and plans are fixed.

3. The adoption of published sampling plans would require a revolutionary change, compared to the plan outlined in this article, in test-checking procedures. Before altering present testing techniques, the auditor should become convinced that present methods result in either:

a. Insufficient evidence, or
b. Excessive sampling.

The analysis of a sample result, evaluation of sufficiency of evidence, through the use of the Poisson distribution is quick and simple. If it is discovered that the auditor is securing insufficient evidence or is performing excessive sampling, then possibly the next step would be the adoption of sampling plans. The Poisson distribution also is an easy to use device for developing single sampling plans.

The use of the Poisson distribution is discussed under three sections:

1. Analyses of a sample result.
2. Preparation of sampling plans, and
3. Reliability of estimated probabilities derived from the Poisson distribution.

An adaptation of part of the tables of cumulative probabilities contained in "Poisson's Exponential Binomial Limit," by E. C. Molina[2] is given at the end of this article. An explanation of the terms and method of reading the tables follows.

1. The top row (see table following article) labeled 0, 1, 2, 3, and so forth, means 0 occurrences, 1 or less occurrence, 2 or less occurrences, 3 or less occurrences, and so forth. The terms "occurrence" is explained and illustrated further in part 3 below.

2. The column labeled "np" is the percent of occurrences (average number of defectives or errors in a group of related items) multiplied by the number of items in the sample and contains the average number of occurrences of an event in a sample.

3. The figures in the rows give the prob-

[1] E. C. Molina, *Poisson's Exponential Binomial Limit—Table I—Individual Terms—Table II—Cumulative Terms* (D. Van Nostrand Company, Inc., New York: 1949).

[2] *Loc. cit.*

ability of the indicated number or less of an event (defective or error in auditing) occurring in the sample. The rows contain the number of times out of 1,000 trials, on the average, that an inspection lot[3] will yield a specified random sample size with the indicated number or less of defectives. For example, the figures in the row opposite "np" of 0.20 give the probability of 0 defectives in a sample with an "np" of 0.20 as 81.9%, the probability of 1 or less defectives is 98.7%, and the probability of 2 or less defectives is given as 99.9%. The preceding sentence means that a sample with a "np" of 0.20 would contain 0 defectives about 819 times out of 1,000 trials, 1 or less defectives 987 times out of 1,000 trials, and 2 or less defectives 999 times out of 1,000 trials, if the trials were repeated under the same conditions. A sample of 100 selected from a .2% defective lot, a sample of 200 selected from a .1% defective lot, and a sample of 500 selected from a .04% defective lot, all are examples of combinations of sample sizes and degrees of defectiveness in inspection lots which will result in a "np" of 0.20.

This article is based upon one or both of the following assumptions.

1. That a random sample is selected. A random sample is a sample selected from an inspection lot in a manner which insures that each item composing the lot has equal probability of being included in the sample.

2. That the inspection lot is homogeneous. A homogeneous inspection lot is one in which a defective item is equally likely to occur throughout the lot. In other words, defective items are distributed evenly throughout the inspection lot.

USE OF THE POISSON DISTRIBUTION TO ANALYZE A SAMPLE

The analysis of a sample procedure is discussed under three sections: 1. Procedure for Rejection of Hypothesis, 2. Procedure for Acceptance of Hypothesis, and 3. Evaluation of Indefinite Sample Result. The following basic example, with alterations needed for illustrative purposes, is used to illustrate the three procedures.

Basic Example

An auditor test-checks the expenditures of a particular fund of a municipality in order to arrive at an opinion whether the expenditures are supported by proper authorization. Although other attributes would be investigated, the auditor in this example investigates only one attribute, proper authorization of expenditures. A defective results from the failure to support an expenditure with proper authorization. The number of expenditures, the inspection lot, for the period under review is about 130,000 and the sample size is 500.

PROCEDURE FOR REJECTION OF HYPOTHESIS

In this example the auditor is willing to accept the inspection lot (the 130,000 expenditure items) as being reasonably accurate and correct if evidence indicates that less than 2% of the lot is defective; therefore, he hypothesizes that the lot is 2% defective, or that the number of defective items in the inspection lot of 130,000 is 2,600. (The 2% figure is not suggested, it is only an example. Other percentages could be used just as readily.) The sample of 500 expenditures contains 20 defective items, 20 items for which proper authorization is not present; therefore, the auditor must answer the following question: What is the probability that an inspection lot of 130,000 expenditures would yield a random sample of 500 items which contains 20 defectives and 480 effective items? Molina's Cumulative Terms of the Poisson Distribution (an adaptation of Molina's tables is given at the end of

[3] An inspection lot is a group of related items upon which an opinion will be formed based upon a partial examination.

this article) can be used to determine the required probabilities. The procedure is outlined below.

1. Compute "np"—The sample size (500) multiplied by the hypothesized per cent of defectiveness (2%) equals a "np" of 10.

2. Find 10 in the column entitled "np."

3. Horizontally opposite the "np" of 10 are the probabilities of a random sample, with a "np" of 10, having 0 defectives, 1 or less defectives, 2 or less defectives, 3 or less defectives, and so forth.

The required probabilities, taken from the tables at the end of this article, are restated and summarized in Table I. Table I shows that an inspection lot of 130,000 items, which contains 2,600 defectives, would yield a random sample of 500 with 18 or less defectives about 993 times out of 1,000 trials.

TABLE I

PROBABILITY THAT AN INSPECTION LOT OF 130,000, WHICH CONTAINED 2,600 DEFECTIVES, WOULD YIELD A SAMPLE OF 500 WITH THE INDICATED NUMBER OR LESS OF DEFECTIVES

Number of Defectives	*Probability of Indicated Number or Less Defectives*
0	less than .001
1	less than .001
2	.003
3	.010
4	.029
5	.067
6	.130
7	.220
8	.333
9	.458
10	.583
11	.697
12	.792
13	.864
14	.917
15	.951
16	.973
17	.986
18	.993

The auditor has cast doubt upon his hypothesis of 2% and should reject it. Only rarely, about 7 times in 1,000 trials, would the hypothesized lot, 2% defective, yield a sample of 500 items with more than 18 defectives, about 993 times in 1,000 trials a 2% defective lot would yield a random sample of 500 with 18 or less defectives. The auditor has evidence to support an opinion that the degree of defectiveness is greater than 2%. He cannot state how much greater, but he can state with a confidence limit of 99% plus that the defectiveness is greater than 2% or that the inspection lot of 130,000 expenditures contains more than 2,600 unauthorized expenditures. The next step would be a matter of decision.

PROCEDURE FOR ACCEPTANCE OF HYPOTHESIS

The example used to illustrate rejection procedure is employed to illustrate acceptance procedure. The inspection lot is 130,000 expenditures of a particular fund of a municipality, the attribute investigated is proper authorization, the sample size is 500 items, and the hypothesized percent of defectiveness is 2%. The sample of 500 expenditures contains 2 defectives; therefore, the auditor has the following question to answer. What is the probability that an inspection lot of 130,000 items, which contained 2,600 defectives, would yield a sample of 500 items with only 2 defectives? Table I contains the required cumulative probabilities. These probabilities were determined in the manner explained in the previous section. Table I shows that a sample of 500, if selected from the hypothesized lot, would contain more than 3 defectives about 99 times out of 100 trials. Rarely, about 1% of the time, would the hypothesized inspection lot yield a sample of 500 with as few as 3 defectives. Thus the 2% hypothesis is unlikely. The per cent of defectiveness probably is less than 2%. The auditor could state with a confidence of being correct 99 times out of 100 trials that the per cent of defectiveness is less than 2%.

Any number of defectives between 3 and 18 would not permit the auditor to arrive at a decision with the confidence or probability limits of 99%. The area between 3 and 18 defectives is the area of indecision, or indefinite sample area, for the confidence limit of 99%. The sample of 500 would not permit a decision with confidence limits of 99% if the sample contained any number of defectives between 3 and 18. However, the probable limits of defectiveness could be evaluated. The next section illustrates the procedure for analyzing an indefinite sample result.

EVALUATION OF INDEFINITE SAMPLE RESULT

The example in this section is the same as the example used in the preceding two sections, except the number of defectives in the sample is 10. The auditor is faced with the following question: What is the probability that an inspection lot of 130,000, which contains 2,600 defectives, would yield a sample of 500 with 10 defectives? As indicated above, the auditor in this example wants confidence limits of 99%, or he wants to arrive at the correct conclusion concerning the lot 99 times out of 100 trials. He is willing to assume a risk of being wrong 1 time out of 100 trials.

Table I shows that a sample of 500 items, if selected from a 2% defective lot, would contain 10 or less defectives about 58% of the time. The sample with 10 defectives very well could have been produced by an inspection lot only 2% defective. The probability limits, however, are too low. The auditor, in this example, wants probability limits of 99%. By a trial and error procedure the auditor could determine a degree of defectiveness which is too high to produce the sample with only 10 defectives and the degree of defectiveness which is too low to produce the sample with as many as 10 defectives. The trial and error procedure is demonstrated below.

First trial

This trial is an attempt to determine a degree of defectiveness which is too high. The attempt is to find a degree of defectiveness which will produce the sample of 500 with 10 or less defectives less than 1% of the time. The first hypothesis or trial is 3%. The "np" equals 15. (Degree of defectiveness multiplied by Sample Size.) The adaptation of Molina's tables at the end of this article shows that a 3% defective inspection lot of 130,000 items would yield a sample of 500 items with 10 or less defectives about 12 times out of 100 trials. This probability limit, 12%, while better than the limit under the 2% hypothesis is still insufficient for the auditor's purpose.

Second trial

The second hypothesis is 4%. The "np" equals 20. The table of cumulative probabilities shows that rarely would an inspection lot of 130,000 items, which was 4% defective, yield a sample of 500 with as few defectives as 10. The sample of 500, if selected from the 4% defective inspection lot of 130,000 items, 989 times out of 1,000 trials would contain more than 10 defectives. The probabilities are still not as high as desired but they are close and for practical purposes probably would be useful but for purpose of illustration a third trial is made.

Third trial

The third hypothesis is 4.2%. The "np" is 21. A sample of 500 with 10 or less defectives would be selected from a 4.2% defective lot of 130,000 items about 6 times out of 1,000 trials, or with a probability of .6%. An inspection lot of 130,000 items which averaged 4.2% defective would yield a random sample of 500 items with more than 10 defectives about 99.4% of the time. The sample used in this illustration has less than 11 defectives, therefore, the auditor can state within confidence

limits of 99% plus that the degree of defectiveness does not exceed 4.2%.

Similar procedures can be used to establish the lowest probable degree of defectiveness boundary. The procedures to determine the lowest probable degrees of defectiveness is outlined below.

First trial

The first hypothesis is 1%. The "np" equals 5. The table of cumulative probabilities (at the end of the article) shows that an inspection lot of 130,000, which is 1% defective or which contains 1,300 defectives, would yield a sample of 500 with 10 or less defectives about 986 times out of 1,000 trials. This same hypothesized inspection lot would produce a sample of 500 with 9 or less defectives about 968 times out of 1,000 trials. The first trial of 1% results in a probability limit very close to the desired 99% limit but another hypothesis is needed to arrive at the 99% limit.

Second trial

The second trial is .8%. The "np" equals 4. The table of cumulative probabilities shows that an inspection lot of 130,000 items, which is .8% defective or which contains 1,040 defectives, would yield a random sample of 500 items with 9 or less defectives about 992 times out of 1,000 trials. Thus the hypothesized inspection lot would yield a sample of 500 with more than 9 defectives less than 1% of the time.

The above trial and error procedure would permit the auditor to state, within confidence limits of 99%, that the degrees of defectiveness in the inspection lot were not more than 4.2% and not less than .8%.

A procedure more direct than the foregoing trial and error procedure can be used to evaluate an indecisive or indefinite sample result. The more direct procedure is illustrated through the use of the same example employed in the trial and error procedure. The auditor wants to estimate the range of defectiveness that would yield a random sample of 500 items with 10 defectives. Also, the auditor wants confidence limits of 99%.

It is necessary to determine the degree of defectiveness that would produce a sample of 500 with 9 or less defectives at the probability limit of 99%. If the sample would contain 9 or less defectives, with a confidence limit of 99%, then only rarely, 1 time out of 100 trials, would the sample contain 10 or more defectives. The auditor traces downward in the 9 or less defectives column of the table of cumulative probabilities to the 99.2% probability line. There is no 99% probability line so the next highest line in the table is used, therefore, the approximate probabilities limits will be slightly higher than 99%. The "np" corresponding to the 99.2% probability line is 4.0. Dividing the "np" of 4.0 by the sample size of 500 gives the degree of defectiveness of the inspection lot as .8%. An inspection lot of 130,000 items, which is .8% defective, would yield a random sample of 500 with more than 9 defectives less than 1% of the time. Thus the auditor has evidence which would support the opinion that the degree of defectiveness is no less than .8%. This answer agrees with the answer arrived at in the trial and error procedure.

The highest degree of defectiveness boundary at the 99% probability limit can be determined in a manner similar to the foregoing illustration. Trace the 10 or less defectives column downward to the .6% probability line. The .6% probability line is the next higher probability line to the 1% line which is desired but is not given in the tables. If a sample would contain 10 or less defectives .6% of the time then the sample would contain more than 10 defectives 99.4% of the time. The corresponding "np" of probability line .6% is 21. The "np" of 21 divided by the sample size of 500 gives the degree of defectiveness as 4.2%, the same answer as in the trial and

error procedure. Within the confidence limits of 99%, slightly higher because of the nature of the tables, the auditor could state that evidence indicates that the degree of defectiveness in the inspection lot is not less than .8% and is not higher than 4.2%.

The analysis of a sample procedure should prove useful in evaluating a sample result for the purpose of arriving at an opinion as to the sufficiency of evidence but the other extreme should also receive attention. Excessive sampling unjustifiably increases the cost of the audit. The auditor needs sufficient evidence, but he also should attempt to reduce the cost of the audit program. Also the analysis procedure, if unsatisfactory evidence was indicated, would require an adjustment to be made in the audit program after the program was underway. This adjustment might prove embarrassing. A sampling plan which would enable the auditor to secure evidence sufficient to either reject or accept his hypothesis or hypotheses and at the same time have the evidence secured with the minimum of sampling can be arrived at easily through the use of the table of cumulative probabilities (an example is contained at the end of this article).

DEVELOPMENT OF SAMPLING PLANS THROUGH THE USE OF THE POISSON TABLE OF CUMULATIVE PROBABILITIES

The designation "acceptance sampling" is given to the process whereby an inspector makes a decision about a group of items on the basis of evidence supplied by the examination of a portion of the group. An example illustrates the use of the table of cumulative probabilities in the construction of sampling plans. An auditor is testing the classification of 200,000 vouchers. The auditor wants a plan which will warn with a high degree of probability, for purposes of this example a confidence limit of 99% is used, when the degree of defectiveness is 2% or greater. (The foregoing percentages are not suggested as standards, they are used for illustrative purposes. Other percentages could be used with equal ease.) The auditor's problem is to design a sampling plan to reject 2% defective lots 99% of the time. The auditor wants a plan which will warn him when the degree of defectiveness is 2% or greater and he wants to determine the smallest possible sample to accomplish his objective within 99% confidence limits. Many combinations of "c" and "np" will accomplish his objective. "c" is used to designate the allowable number of defectives in a sample, or "c" is the maxmum number of defectives accepted. "c" is the number of defectives in the sample upon which action is based, if "c" or less defectives occur the hypothesis is accepted, or the lot is passed as being reasonably accurate. If more than "c" defectives occur in the sample the hypothesis is rejected and the lot is not passed as being reasonably accurate.

The following seven sampling plans all will reject 2% defective lots 99% of the time, or the seven sampling plans will warn the auditor 99% of the time when the degree of defectiveness in a lot is 2% or more.

Plan Number	*Allowable Number of Defectives in Sample* "c"	*Sample Size Multiplied by Percent of Defectiveness* "pn"	*Sample Size* "n"
1	0	4.6	230
2	1	6.6	330
3	2	8.5	425
4	3	10.0	500
5	4	12.0	600
6	5	13.5	675
7	6	14.5	725

The above seven plans were determined in the following manner. The indicated "c" column was followed to the desired confidence limit. For example, the 0 column was traced to the .010 row. (If the probability of 0 defectives is .010 then the probability

of 1 or more defectives is .990.) The "np" corresponding to the .010 row is 4.6, which means that a sample with a "np" of 4.6 will contain 1 or more defectives about 99% of the time. The auditor's hypothesized degree of defectiveness is .02, thus "p" is .02. Therefore "n" equals 230 or "np" divided by "p" equals "n." (4.6 divided by .02 equals 230.)

The other six plans were determined in the same manner. The indicated "c" column was followed to the desired confidence limit, .010, and the corresponding "np" was divided by the hypothesized per cent of defectiveness .02.

All of the above seven plans will warn the auditor when inspection lots are 2% or more defective. Rarely (about 10 times in 1,000 trials) would 2% defective lots yield a random sample of 230 with 0 defectives. A 2% defective inspection lot would yield a random sample of 330 with 1 or less defectives only about 10 times in 1,000 trials. The same type of analysis holds true for the other five plans.

While the above seven plans will reject 2% defective lots with a 99% frequency, they also will reject lots with less than 2% defectiveness with different levels of probabilities. The frequencies with which the plans will reject lots of .5% defectiveness is contained in the following analysis, Table II. The headings of the columns indicate the method of using the table of cumulative probabilities (table follows article) to derive the required estimated probabilities.

Table II shows that plan 7 rarely (about 5 times in 1,000 trials) would reject .5% defective inspection lots. Thus plan 7 will reject 2% defective lots 99% of the time and will pass or accept .5% defective lots 95% of the time. Plan 7 will reject lots with degrees of defectiveness between .5% and 2% with increasing frequency as the degree of defectiveness increases from .5%. If the acceptance limit and the rejection limit are to be brought closer together, within the same confidence limits, the sample size must be increased, or conversely, the sample size can be decreased if the acceptance limit and the rejection limit are moved further apart.

RELIABILITY OF THE ESTIMATED PROBABILITIES DERIVED FROM THE POISSON DISTRIBUTION

A comparison of probabilities developed through the solutions of combinatorial formulas with probabilities derived from Molina's probability tables based upon the Poisson distribution show that if the degree of defectiveness is 10%, if the relative size of the sample compared with the inspection lot size is 10%, and if the sample size is 50, then the difference between the cumulative probabilities derived from the Poisson distribution and the cumula-

TABLE II

FREQUENCIES WITH WHICH THE INDICATED SAMPLING PLANS WILL REJECT .5% DEFECTIVE LOTS

Plan No.	"*n*"	"*c*"	"*pn*" ($n \times .005$)	*Probability of Rejecting.* (*Probability of "c" or less Defectives.*)	*Probability of Acceptance.* (*Probability of more than "c" Defectives.*)
1	230	0	1.15	.32	.68
2	330	1	1.65	.52	.48
3	425	2	2.13	.64	.36
4	500	3	2.50	.76	.24
5	600	4	3.00	.82	.18
6	675	5	3.38	.87	.13
7	725	6	3.63	.95	.05

ADAPTED EXTRACTS OF MOLINA'S CUMULATIVE TERMS OF THE POISSON DISTRIBUTION*

Probability of "c" or Less Occurrences in 1,000 Trials of an Event That Has an Average Number of Occurrences Equal to "np"

"np"/c	0	1	2	3	4	5	6	7	8	9	10
0.20	819	982	999	1000							
0.30	741	963	996	1000							
0.50	607	910	986	998	1000						
0.80	449	809	953	991	999	1000					
1.00	368	736	920	984	996	999	1000				
1.50	223	558	809	934	981	996	999	1000			
2.00	135	406	677	857	947	983	995	999	1000		
2.60	074	267	518	736	877	951	983	995	999	1000	
3.00	050	199	423	647	815	916	966	988	996	999	1000
3.60	027	126	303	515	706	844	927	969	988	996	999
"np"/c	0	1	2	7	8	9	10	11	12	13	14
4.00	018	092	238	949	979	992	997	999	1000		
4.60	010	056	163	905	955	980	992	997	999	1000	
5.00	007	040	125	867	932	968	986	995	998	999	1000
5.60	004	024	082	797	886	941	972	988	995	998	999
6.00	002	017	062	744	847	916	957	980	991	996	999
6.60	001	010	040	658	780	869	927	963	982	992	997
"np"/c	1	2	3	13	14	15	16	17	18	19	20
8.5	002	009	030	949	973	986	993	997	999	999	1000
9.0	001	006	021	926	959	979	989	995	998	999	1000
9.5	001	004	015	898	940	967	982	991	996	998	999
10.0	000	003	010	864	917	951	973	986	993	997	998
"np"/c	4	5	6	7	8	10	18	19	20	21	
12.0	008	020	046	090	155	347	963	979	988	994	
13.5	003	008	019	041	079	211	908	942	965	980	
14.5	001	004	010	024	048	145	853	901	936	960	
15.0	001	003	008	018	037	118	819	875	917	947	
16.0	000	001	004	010	022	077	742	812	868	911	
"np"/c	22	23	24	25	26	27	28	29	30	31	
12.0	997	999	999	1000							
13.5	989	994	997	998	999	1000					
14.5	976	986	992	996	998	999	999	1000			
15.0	967	981	989	994	997	998	999	1000			
16.0	942	963	979	987	993	996	998	999	999	1000	
"np"/c	8	9	10	11	12	13	24	25	26	27	
18.0	007	015	030	055	092	143	932	955	972	983	
19.0	004	009	018	035	061	098	893	927	951	969	
20.0	002	005	011	021	039	066	843	888	922	948	
21.0	001	003	006	013	025	043	782	838	883	917	
22.0	001	002	004	008	015	028	712	777	832	877	
"np"/c	28	29	30	31	32	33	34	35	36	37	
18.0	990	994	997	998	999	1000					
19.0	980	988	993	996	998	999	999	1000			
20.0	966	978	987	992	995	997	999	999	1000		
21.0	944	963	976	985	991	994	997	998	999	1000	
22.0	913	940	959	973	983	989	994	996	998	999	

* E. C. Molina, *Poisson's Exponential Binomial Limit—Table I—Individual Terms—Table II—Cumulative Terms*. (D. Van Nostrand Company, Inc., New York: 1949).

The book, "*Statistical Quality Control*," by Eugene L. Grant, McGraw-Hill Book Company, Inc., 1946, pp. 542-546, contains a more complete set of cumulative probability tables than that presented here.

tive probabilities of the combinatorial formulas will be less than .03. Conditions which tend to make the Poisson probabilities approximations and the combinatorial probabilities agree more closely are outlined below.

1. An increase in the sample size has the tendency to make the approximate probabilities of the Poisson distribution agree more closely with the probabilities derived through solutions of combinatorial formulas.

2. The approximation of the probabilities as derived from the Poisson distribution grows less reliable as the size of the sample is increased relative to the size of the inspection lot. Conversely, the approximations of the Poisson and the probabilities of the combinatorial formulas agree more closely as the relative size of the sample compared with the size of the inspection lot decreases.

3. A decrease in the per cent of defectiveness in the inspection lot causes the approximate probabilities of the Poisson distribution to become more reliable or closer to the probabilities derived from solutions of combinatorial formulas.

4. The largest deviations between the approximate cumulative probabilities of the Poisson distribution and the cumulative probabilities of the combinatorial formulas occur in the parts of the curves which lie between 10% to 90% probability limits. The auditor is concerned with the extremes of the curves, parts which lie between probability limits less than .1% to 10% and probability limits 90% to more than 99%. Thus the Poisson cumulative probabilities used by the auditor will differ less than the above mentioned .03 from the probabilities that would be derived from the laborious combinatorial formulas process.

The use of probability theory will not eliminate the risks inherent in any testing program, however, the use of probability theory will permit the auditor to calculate his risks. Also, the use of probability theory will not relieve the auditor from the responsibility of making decisions and from the responsibility of exercising judgment, but probability theory can be useful as a basis for a rigorous objective decision concerning the course of action to be taken by the auditor.

OPPORTUNITIES FOR A CAREER IN GOVERNMENTAL ACCOUNTING*

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I

The selection of your career is a matter of great importance, not only to yourself, but to others as well. Choosing a career is, in effect, choosing a way of life, for truly a man is largely what he does. But since one does not live and work alone, your life will be made up largely of the relations you bear to others. Your life will be guided, expressed, judged, and made or marred by those relations.

The selection of your career is a difficult task. It involves a study and an understanding of yourself and your capabilities, as well as the opportunities and advantages of many possible pursuits. You must see the world as it is, and your own true place and function in it. You must see yourself soberly and know what your powers are, and under what conditions they must be used.

The Greek philosopher Thales, when asked, "What is most difficult?" replied: "To know thyself." When asked, "What is easiest?," he replied: "To advise others." The selection of a career combines the easy task of obtaining advice from others and the difficult task of knowing yourself.

From the experience of others, certain general principles or rules have developed which should be of interest and value to you who are concerned with the selection of a career. These rules are outlined briefly:

1. Select a career in which the financial remuneration is adequate. A man's first responsibility and duty is to be self-supporting.

2. Select a career in which the type of activity is marked by a high individual responsibility, and one which deals with problems on a distinctly intellectual plane. Thus, choose accountancy rather than bookkeeping; a profession rather than a trade.

3. Select a career in which you will be activated by a motive of service as distinct from a motive of profit. This is characteristic of a profession.

4. Select a career in which your special aptitudes and characteristics may be used to the greatest advantage. As a result, society, as well as yourself, will benefit most from your special talents.

5. Select a career in a field of activity in which the need and demand for your special talents is greatest. Avoid overcrowded fields of activity.

6. Select a career in a field of activity in which your work is essential and important, and which will have a lasting influence and value after performance. Your expenditures of effect should be for "capital improvements," not merely "expenses."

7. Select a career which offers an opportunity for your greatest personal development and one in which you can achieve the best that is in you. To do this, it seems necessary that you

(1) have a great interest in your work;
(2) retain complete freedom of thought;
(3) retain the highest degree of intellectual honesty and integrity;
(4) be proud of your work and believe in its ultimate success;
(5) receive personal satisfaction and happiness in the performance of your duties.

The opportunities for a career in govern-

* Presented at the Accountancy Club, School of Business, Stetson University.

mental accounting are indeed great for those young men and women who have the necessary aptitudes and personal characteristics, and who have had the basic training in accounting and related subjects. The demand for competent personnel in governmental accounting is urgent, and the opportunities to render needed services to your community have never been greater. Let us consider some of the characteristics of governmental service and review briefly the present situation.

II

Governmental accounting is broad in scope, offering the greatest possible variety of work to the accountant. Contrary to popular opinion, governmental accounting is not a limited and narrow field of activity. It is as varied and broad in scope as governmental functions and activities are themselves, because every governmental function and activity having a financial aspect must be recorded, accounted for, and reported.

It has been estimated that there are more than 160,00 separate and independent governmental units in this country, each rendering some sort of governmental service. Each of these units require a separate and individual accounting and reporting on its financial activities. Although many of these units render similar services and perform similar functions, their specific methods of operations, and therefore their accounting procedures, may vary widely.

This vast number of governmental organizations are engaged in activities of two major types: 1) those relating to business enterprise functions, operating as a business, but owned and controlled by the government, and 2) those relating primarily to general governmental functions. The administration and control of these activities may be exercised by the Federal, state, county, or municipal governments, or through a department, commission, or agency functioning as a part of such governmental divisions.

III

Governmental accounting is important because of the large sums of money which must be accounted for, thus offering an opportunity for those accountants who are willing to accept heavy individual responsibilities. Government "business" is truly big business. Government spending has reached such proportions that it is difficult to understand fully the true meaning of the amounts involved.

Although the Federal government is taking from $\frac{1}{4}$th to $\frac{1}{3}$rd of the total income, these amounts have not been sufficient to cover its expenditures. In the current year, expenditures amounted to about $74 billions, and $9 billions had to be borrowed. During the past 20 years, spending has been in excess of revenues and borrowing has amounted to $272 billions, which have not been repaid.

A report of the Department of Commerce indicates that state taxes amount to as little as $36 per person per year in New Jersey to as much as $103 in Washington. The average is $65, or $325 per year for a family of 5. Of the 44 state legislatures meeting this year, 32 increased their appropriations over prior years. Total appropriations were in excess of $13 billions, while estimated revenues were about $12.2 billions. These large sums are spent for public education, road construction and repair, higher education, hospitals and penal institutions, general government, and so on.

In addition to the increased spending of the Federal and state governments, towns, cities and counties have been spending more and more each year for needed governmental services. Certainly we can agree that the proper accounting and reporting on such vast spending is a matter of great importance, not only to the governmental

agency concerned, but to every citizen of this country as well.

IV

Governmental accounting is not only important, but it is necessary to a properly functioning government. It offers a great opportunity to the competent accountant to render an essential service of lasting value to the public. Governmental business has become so large and so dominant in our economic and social life that sound accounting has become a necessity for its continued existence. It is no exaggeration to say that without reasonably accurate and dependable accounting, our government would soon cease to function and our entire economic and social strcture would collapse. There can be no sound and responsible government without proper fiscal accountability.

Accounting is essential for the proper administration and control of governmental activities. The administration and control of governmental activities involves several major steps, all of which are concerned with and dependent upon accounting. These steps may be outlined briefly as follows:

1. There must be an organizational plan for getting things done, based upon the major functions and activities of the agency concerned.
2. There must be an adequate system of internal control for the protection of the resources received and for increasing the general efficiency of operations. This is usually brought about by a proper division of duties and responsibilities and the separation of the operational, custodial, and record keeping functions, as provided for in the organizational plan.
3. There must be a carefully prepared budget, setting forth the activities planned with their estimated costs, estimated revenues, and proper authorizations to collect the revenues and make the necessary expenditures as planned.
4. There must be an adequate accounting system in which to record the estimated and actual revenues and expenditures, and all other financial transactions of the organization. It is only through properly kept accounting records that the management is able to exercise control over the operating activities as well as the fiscal affairs of the agency.
5. There must be a complete and full reporting on the results of operations. To be of value, these records must be consistent and in conformity with the organizational plan, the budget, and the accounts. These reports should be a full disclosure of all pertinent information, and made useful to the public and to management alike.

Governmental accounting is essential for providing information about functions performed and the costs of performing those functions. This information is needed to determine when government spending is proper and when it is improper. Growing concern has been expressed over the rapidly increasing expenditures and the increasing costs of governmental services. Questions are being asked regarding what services should be performed by the government and what should be left to private enterprise. The development of dependable functional costs and cost standards in governmental operations is the responsibility of governmental accounting and presents a field of unlimited opportunity to the resourceful accountant.

Governmental accounting is essential in determining whether the duties and the responsibilities of the various governmental officials and employees have been properly discharged. This function of accounting is performed in part by the internal auditor, but more particularly by the agency performing the post-audits. The nature of the services performed and the responsibilities assumed by the auditors are indicated to some extent by the "report" of the auditor.

This report usually states whether or not:

(1) The accounting system is adequate;
(2) The system of internal control is functioning properly;
(3) Generally accepted governmental accounting principles and procedures were followed;
(4) Sound financial and business principles and procedures were followed;
(5) All legal requirements were correctly observed;
(6) A reasonable degree of honesty, integrity and efficiency marked the operations of the office;
(7) The financial reports fairly present the results of operations and the financial condition of the agency at given times.

V

Governmental accounting is both technical and complex, requiring for its mastery special study, training and experience on a distinctly intellectual and professional level. Governmental departments and agencies are created by law to engage in activities and perform functions which are aften complex and involved. The functions to be performed are usually set forth in the law creating the agency. Its financial and operating activities are limited and conditioned, and otherwise regulated by the law. Since the agency can do only what it is permitted to do by law, the accounting practices themselves are conditioned, in like manner by the law, and as a result may become quite technical and complex. Accounting for the university, the state road department, or a hospital illustrate this point.

Certain characteristics of governmental agencies tend to make the accounting more technical and complex than is generally understood. This point may be illustrated by some examples.

One of the important concepts in governmental accounting is that a single agency is not simply one accounting entity, but may be several. In the same manner in which one individual may engage in many business activities and require a separate accounting and reporting on each activity, so a single agency or governmental unit may engage in many financial activities and require a separate accounting and reporting on each activity. The idea of a "fund" as being a distinct and separate legal, accounting and fiscal entity is fundamental in all governmental accounting.

Governmental agencies are usually organized to perform services and not to make profits. Since there is no profit motive and the measurement of profits is not important, many of the problems found in commercial accounting are absent. The valuation of assets and the measurement of incomes and expenses are usually of little or no concern. The amount of revenues and cash receipts received, and the expenditures and cash disbursements made, however, become particularly significant.

Due to the methods of financing used by governmental units and the necessity of maintaining proper control over all operations, it is necessary to prepare budgets showing all estimated resources and all proposed expenditures. The budget must be recorded in the accounts, and financial reports must be prepared from time to time showing the status of the planned operations to the actual. The use of the budget in meeting both the legal and administrative requirements often becomes quite difficult and technical.

VI

There is a great lack of competent accounting personnel in all phases of governmental activity. Proper organizational plans, budget procedures, accounting systems and office routines may be formulated and installed, but they are ineffective and useless without well-trained and competent personnel.

Because governmental accounting is technical and complex, it is an error to assume that satisfactory accounting work can be performed by anyone, regardless of their previous training or experience. In order to become competent in this work, special training and study, as well as experience, are necessary.

The characteristics and training an accountant should have will be conditioned somewhat by the work he is to perform. Accounting functions are so varied and the degree of specialization is so great in governmental work that men of different training and aptitudes may each succeed at different accounting jobs. In addition to the routine work of clerks and bookkeepers, there are the more responsible positions usually described or listed as accountants, internal auditors, controllers, and so on. For these responsible positions, the accountant should possess certain well recognized qualities and have a thorough and broad training.

It should be emphasized, however, that the success of the accountant will be determined by those characteristics necessary in successfully dealing with people, as much as the technical and specialized knowledge of accounting and auditing.

The personal qualities that are recognized as being helpful in governmental accounting as well as in other professional work, include the following:

(1) A high degree of intelligence;
(2) A high regard for honesty and intellectual integrity;
(3) Tact, courtesy, good manners, and a regard for other people's rights;
(4) A cooperative attitude and a regard for "teamwork";
(5) An open mind and a willingness to continue to learn;
(6) A special aptitude for accounting and financial matters.

The training should include a thorough understanding of the fundamentals relating to the following subjects:

(1) English, both spoken and written;
(2) Accounting, including general principles, systems, cost, governmental and institutional, and auditing;
(3) Business and administrative law;
(4) Government and public administration;
(5) General economics and public finance;
(6) Business administration and finance.

The remuneration for governmental accounting work has been low, but is now fair and is improving. Notices relating to Federal employment indicate a salary range beginning at about \$3600 and running up to as much as \$10 thousand, \$12 thousand or more. Salaries for work in the various state and other government offices vary widely, ranging from about \$2400 upward to as much as \$10 thousand. These salaries are usually increased by retirement benefits which will add as much as 5 to 8 per cent to the stated salary. This pay is usually for a five day week of some 40 to 45 hours with the usual vacations and other allowances.

The financial considerations are important. The amount of the salary is often indicative of the responsibilities assumed and the general importance of the work to be performed. And too, it is necessary that the remuneration be sufficient to enable one to live in reasonable comfort and dignity and to provide a reasonable reserve for retirement in due time.

It should be noted, however, that in the selection of your career, too much emphasis should not be placed on the financial aspects of your employment. There are several other factors that are equally or even more important than the salary. These factors were outlined at the beginning of this discussion. In this regard, the comment of Woodrow Wilson is particularly appropriate. He said: "Surely a man has succeeded only when he has found the

best that is in him, and has satisfied his heart with the highest achievement he is fit for. And assuredly, no thoughtful man ever came to the end of his life and had time and a little space of calm from which to look back upon it, who did not know and acknowledge that it was what he had done unselfishly and for others, and nothing else, that satisfied him in the retrospect, and made him feel that he had played the man. That alone seems to him the real meaning of himself, the real standard of his manhood. Men who live with an eye only upon what is their own are dwarfed beside those who devote themselves to serving others."

FUNDS STATEMENT PRACTICES IN THE UNITED STATES AND CANADA

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ACCOUNTING LITERATURE in recent years has paid increasing attention to the source and application of funds statement. Textbooks at the intermediate level have made it a standard topic. Journal articles concerned with the funds statement have been numerous. These journal articles may be grouped into three broad categories: (1) Those dealing mainly with the concept of *funds* as used in the funds statement, (2) Those dealing with form and presentation of the funds statement, and (3) Those dealing with techniques for the solution of funds statement problems. We are not concerned here with the latter.

The first category listed has been given little or no attention in textbooks, although it has been the subject of most of the journal articles. Textbooks almost unanimously have adopted the concept of *funds* as synonymous with working capital. This agreement does not exist among the journal writers. Instead, lively arguments have resulted from differences of opinion as to what should constitute *funds* in company flow-of-funds analyses. Thus, the *funds* concept has been variously conceived as encompassing cash, cash and marketable securities, quick assets, net "free" cash, current assets, total assets, net working capital, net quick assets, or all balance sheet changes. In general these arguments have been conducted with little attention to the underlying premises on which an integrated theory of funds analysis can be based or to actual current practice.

BASIC PREMISES

The funds statement is the only major accounting report that is not predicated on the "income" approach. As such, it should not be dependent on any preconceived, or conventional, notion of income. Conventions of "permanence" of the accounting entity, or of a static "monetary" measurement device do little harm to its basic framework. Neither is it dependent on the postulate of realization with its attendant cost and revenue allocations. Instead, the funds statement is predicated on the *funds* basis with income considerations essentially alien to it. The *funds* basis is concerned with the availability and use of "current purchasing potential" by the company. Differences of opinion as to what best represents this current purchasing power have led to the use of various concepts of funds.

Objectives

Differences in objectives have been partially responsible for the extensive use of alternative concepts, since the funds concept used must be consistent with the objectives of the reporting. The funds statement has evolved from an intellectual curiosity analyzing balance sheet changes, to a useful operational and budgetary statement. The prime objectives of the funds statement are to aid in financial management and control, and to report on such management.

While the funds statement has been available for use since the early part of the century, its greatest period of adoption

has been after World War II. It is in this period that many forces have combined to make financial planning, management, and reporting vital. For one, the ascendancy of the management-controlled corporation had made necessary accountability of funds as well as income.[1] Secondly, the reliance on internal funds for major financing has made funds planning and management extremely important.[2] Finally, economic and social pressures have been felt to account more fully for "profits."[3] The funds statement has been an important vehicle of this accounting.

General-purpose Funds Statements

Proponents of the various concepts of funds inherently are presupposing some specific objective for their report. Polemics over which concept is "the correct one," therefore, avoid the question. A general purpose funds statement may be unobtainable. However, criteria for such a statement may be proposed. If the statement is to serve the dual role of a report on funds management, and a tool for such management, it must be analytical as well as operationally-based. Thus a concept of cash representing *funds* may be inadequate since many pertinent transactions affecting the financial position of the company are non-cash in nature. At the other extreme, *funds* represented as a concept of "total resources" ignores any criteria for differentiating creation and use of currently available purchasing potential.

One possible solution may be hazarded: This is that the recognition of *funds* transaction follows consistently the concept of *expenditure*.[4] Thus, a funds transaction, and thereby a funds-flow, may be deemed to have taken place whenever an expenditure is made. The business concern in question may have made the expenditure, or received the commitment on some other company's expenditure. The criteria logically are the same on both ends of the same transaction. A concept that unrestricted or "free" money assets represent *funds* would follow from this premise.

SURVEY OF FUNDS STATEMENT PRACTICES

Of immediate importance at this early exploratory point is a factual analysis of current practice with respect to the funds statement. Since the objectives of the funds statement are inextricably linked with operations a determination of how practice has developed is useful. To satisfy this need the writer undertook an extensive survey of the funds statement practices of 500 United States and Canadian corporations.[5]

Table I gives the breakdown of the selected sample, and the percentage of replies obtained. It should be noted that

[1] The separation of ownership from control of corporate property has been the subject of much literature. See for example: Berle, A. A. Jr. and Means, G. C., "*The Modern Corporation and Private Property*," Macmillan, New York, 1932; Drucker, Peter, "*The New Society*," Harper, New York, 1949; Gordon, R. A., "*Business Leadership in the Large Corporation*," Brookings Institute, Washington, D. C. 1945; Hurff, George B., "*Social Aspects of Enterprise in the Large Corporation*," Univ. of Penn. Press, Phila., 1950; Purdy, H. L., Lindahl, M. L., and Carter, W. A., "*Corporate Concentration and Public Policy*," Prentice-Hall, New York, 1950; and others.

[2] See Friend, Irwin, "Business Financing in the Postwar Period," *Survey of Current Business*, March, 1948, pp. 10–16, 23.

[3] See for examples, "*Profits*," Report of the Subcommittee of the Joint Committee on the Economic Report on Profit Hearings, 80th Congress, 2nd Session, U. S. Govt. Printing Office, Washington, D. C., 1949 and, "*U. S. Steel's Policies on Costs, Prices, Plants, Productivity*," Testimony by Officials of U. S. Steel before the Joint Committee on the Economic Report, Washington, D. C., January 24, 1950.

[4] Expenditure here defined narrowly as the current commitment to make a *concurrent* or *future* outlay of money.

[5] The survey was conducted under the auspices of the Bureau of Business Research of the University of Washington. Professor Henry Ira Kester offered valuable suggestions and comments, and Mr. Joseph B. Olson furnished technical assistance. The survey was designed to test a representative cross-section of the industrial economy with the basic population being the 4000 companies listed in *Moody's Manual of Investments, Industrials, 1951*. A random selection of 500 was made, and a mail questionnaire forwarded. Subsequently, the companies were subdivided into five groups according to size as measured by total assets.

although returns from all classes were adequate, the largest size corporate group returned a substantially higher percentage, and that, in general, replies obtained varied directly with the size groups.

TABLE I

REPLIES TO FUNDS STATEMENT QUESTIONNAIRE
(By Size of Company)

Group Size of Company[a] (Total assets)	*No. of Companies*	*No. of Replies*	*Per Cent Replied*
A over $100 million	44	32	73%
B $50–$99 million	38	25	66%
C $10–$49 million	156	106	68%
D $ 5–$ 9 million	103	55	53%
E under $5 million	146	72	49%
Miscellaneous[b]	13	0	0%
Total	500	290	58%

[a] These size-groups will be identified only by the letters A, B, C, D, E below.

[b] Of these, 10 companies did not give information about the size of their business, and 3 companies had been liquidated. The 3 liquidated companies were removed from further analytical percentage calculations.

Companies Using Funds Statements

Extent of usage was proportionately higher for the larger sized companies. Table II indicates that 68% of all companies polled used the funds statement. However, only 43% of those companies with total assets under $5 million used the funds statement as compared with 94% of the companies with total assets over $100 million. The variation in extent of usage is considered to be due to several factors. In particular, large companies have a tendency to over-invest in liquid funds, and this may have influenced the need for funds statements.[6]

A partial check on the validity of the replies is possible by comparing the American Institute of Accountant's report on funds statements in *Accounting Trends and Techniques* for 1951.[7] There 94 of the 525 companies or 17.8% were represented as using funds statements. These, however, are users of funds statements in annual reports. There is no effort by the Institute to reflect internal reports. Our survey indicates that 19% of the respondents included the funds statement in annual reports to stockholders. These figures are comparable. The greater use of funds statement as an internal statement is apparent.

TABLE II

RESPONDENT COMPANIES USING FUNDS STATEMENTS
(By Size of Company)

Size[a] *Group*	*No. of Companies Replying*	*No. of Companies Using Funds Statements*	*Per Cent of Respondents Using Funds Statements*
A	32	30	94%
B	25	22	88%
C	106	84	78%
D	55	30	55%
E	72	31	43%
Miscellaneous	0	0	0
Total	290	197	68%

[a] See Table 1.

Companies Using Funds Statements in Reports to Stockholders

Table III indicates the availability of the funds statement to various groups. Again we should note that reporting to stockholders on a funds basis varies proportionately to size. One in every three large companies presents funds statements to stockholders regularly. One in four for the medium sized companies, and only one in twenty for the small companies. Large companies apparently are more conscious of the need for stewardship reporting, good public relations, and the need for interpretation of the technical income statement.

[6] This tendency is evidenced in part by the fact that in 1947, 113 manufacturing corporations with assets over $100 million had an average current ratio of 2.87 to 1, and a quick ratio of 1.57 to 1. This is in contrast to all manufacturing corporations in the same year (and the same study) which had ratios of 2.67 to 1, and 1.45 to 1, respectively. Data from U. S. Dept. of Commerce, Bureau of the Census, "*Statistical Abstract of the United States*," 1951 ed. Table 890, p. 746, from F.T.C. data.

[7] American Institute of Accountants, "*Accounting Trends and Techniques*," Fifth Annual Survey, New York, 1951, p. 8, 28.

TABLE III

FUNDS STATEMENTS—AVAILABILITY TO INTERESTED GROUPS
(By Size of Company)

Size Group	Management		Stockholders		Banks, Etc.[b]	
	No.	%	No.	%	No.	%
A	30	100%	10	33%	3	10%
B	22	100%	5	23%	3	14%
C	84	100%	19	23%	15	18%
D	29	97%	1	3%	4	13%
E	27	87%	2	6%	12	39%
Total	192	97%[a]	37	19%	37	19%

[a] Although one would presume that these reports would always be made available to management, five of the smaller companies replied in essence that the reports were not used by management, but were prepared by C.P.A.'s solely for the benefit of stockholders, board of directors, creditors, etc., and included in the audit report.

[b] These figures include banks and other creditors. No attempt was made to segregate them, although several respondents crossed out "other creditors." One would presume that these statements went largely to banks.

An attempt was made to delineate other groups such as employees, the S. E. C. and the general public, but the results proved inconclusive. Replies in all cases were less than for stockholders, and in general, stockholders' reports are available to other groups.

Companies Using Funds Statements in Reports to Banks and Other Creditors

In companies with assets under $5 million, 39% of the companies made funds statements available to banks; those with assets over $100 million, 10%: and all others between 14% and 18%. Size again seems pertinent. The results of the survey tend to reinforce the contention that smaller companies are more dependent on bank credit than larger companies.[8]

LENGTH OF TIME IN USE

The length of time that the funds statement has been used by the respondent companies is shown in Table IV. These results support the thesis that the greatest period of development has been in the last 20 years—about 70% of all adoptions occurring in this period. Only in the very large (Group A) companies have funds statements been used substantially for longer periods. One-third of all corporations adopting the funds statement have done so in the last ten years. Adoptions by the smaller corporations were particularly heavy in this period—averaging about 50%. Group A, B, and C companies had relatively heavy adoptions in the 10–20 year period. Thus, it may be that the smaller corporations are lagging behind not only in percentage of adoptions, but also in the timing of adoptions.

TABLE IV

FUNDS STATEMENTS—LENGTH OF TIME IN USE

Years in Use	All Purposes		In Stockholders' Reports	
	No. of Companies	%	No. of Companies	%
1 to 4	30	15%	11	30%
5 to 9	35	18%	15	41%
10 to 19	72	37%	7	19%
20 to 29	41	21%	2	5%
30 and over	10	5%	2	5%
Not stated	9	4%	0	0
Totals	197	100%	37	100%

The increased use in recent years is accentuated by observing the adoptions of the funds statement for inclusion in stockholders reports. Here 70% of the adoptions have been made in the last ten years, and 90% in the last 20 years. If this trend continues, we may see even more widespread use in the near future.

CONCEPTS OF FUNDS IN USE

The concept of *funds* has commanded primary attention, both theoretically and as developed to fit the needs of business. As was expected, the survey revealed rather wide-spread differences of opinion as to the basic meaning of *funds.* Table V illustrates the specific concepts advanced by the respondents.

There is strong support for the idea that *funds* are equivalent to working capital.

[8] See Howard, B. B., and Upton, M., "*Introduction to Business Finance,*" McGraw-Hill, New York, 1953, p. 356; and Nat. Assoc. of Manuf. "*Financing Small Business,*" Economic Policy Division, No. 35, December, 1950, p. 19.

TABLE V

CONCEPTS OF FUNDS AS APPLIED IN THE PREPARATION OF FUNDS STATEMENTS
(By Size of Company)

Concepts Used	*Number of Companies Using*					*No.*	*Total*
	A	B	C	D	E		
Net Working Capital	12	12	45	19	13	101	50.5%
Cash	16	4	23	4	6	53	26.5%
Net Quick (Money) Assets	1	2	5	2	5	15	7.5%
Total Assets	1	2	3	1	3	10	5.0%
Cash plus Marketable Securities	1	1	2	0	1	5	2.5%
All Balance Sheet Items	1	1	2	0	0	4	2.0%
Current Assets	0	0	1	1	1	3	1.5%
Quick (Money) Assets	0	0	1	2	0	3	1.5%
Misc. Concepts.	1	0	2	1	2	6	3.0%
Total	33[a]	22	84	30	31	200[a]	100 %

[a] Includes 3 companies using different concepts for internal statements and stockholders reports.

As has been indicated above, working capital is the concept of funds preferred by the textbook writers who support it almost unanimously. It would appear that since in practice only 50% of the users of the funds statement adhere to the net working capital concept that the unanimous textbook position may be seriously questioned.

Fifty per cent of the large corporations and almost 30% of all corporations use a cash or cash-equivalent concept of funds. If the large companies are in fact leading the development of use of this technique, adoption of the cash concept may be expected to increase.

A total of 38% of the companies use a concept that excludes inventories from funds. This is a consideration that has been almost completely ignored by accounting writers. The inclusion of inventories within the funds concept poses serious question as to the free availability of such funds.[9]

OBJECTIVES OF PRESENTATION

The concept of funds and the form of presentation of the funds statement is predicated on the objective of the presentation. Table VI shows the objectives stated by respondent companies as being pertinent for funds statements included in stockholder's reports. There was no significant variations in the reported percentages among companies of various sizes, although the very large companies stressed the explanation of profits motive as the most dominant.

Emphasis on the reporting aspects of the funds statement is an important indication of some breakdown in communication through conventional statements. It is presented to fill a need for analysis of financial changes and financing which is unobtainable in the two conventional statements. In effect, a different kind of reporting is made: In contrast to *income* and *cost* flows, we are here dealing with exchanges of current funds.

The high percentage of replies suggesting that an objective of the funds statement is to explain the function and use of

[9] See Moonitz, M., "Inventories and the Statement of Funds," ACCOUNTING REVIEW, July, 1943, pp. 262–266. A common contention is that "if you look upon increases in working capital as an application, additional investment in inventory is thus shown." This is fallacious from two viewpoints: First, if working capital *is* funds, how can an increase in funds (working capital) be an application of funds? It is obvious that the increase in working capital is *not* an application (disposal), but rather the net residual increase in funds available to the business. Secondly, the "additional investment in inventory" is not shown separately as an application of funds, but as part of an increase in working capital, not one whit different than an increase in cash or equivalent. Moreover, few companies furnished supplementary schedules of working capital changes.

TABLE VI

OBJECTIVES STATED FOR THE INCLUSION OF FUNDS STATEMENTS IN REPORTS TO STOCKHOLDERS

	Number of Companies	*Per Cent*
Number of companies presenting funds statements to their stockholders	37	100%
Objectives stated:		
(1) To report financial changes not readily seen in either the balance sheet or the profit and loss statement	24	65%
(2) To explain the function and use of profits to stockholders	23	62%
(3) To illustrate financial strengths and weaknesses to stockholders	10	27%
(4) To help stockholders make financial decisions	1	3%

profits to stockholders reflects an important attitude. Management has felt an increasing pressure to account for its reported profits and retained earnings. Concurrent with these, there has been a need to overcome inadequacies of the accounting method to provide sufficiently for replacement of fixed assets through depreciation reserves. These twin objectives explain in part the desire to account for retained earnings. The needs can adequately be met by use of funds statement reporting, although some modifications from the usual statement may be needed.

ANALYSIS OF FUNDS STATEMENTS INCLUDED IN STOCKHOLDERS' REPORTS

Forms of Funds Statements

The objectives expressed above explain in part the forms of funds statements included in stockholders' reports submitted by the respondent companies. In all cases where specimen reports were submitted, the short summary type of statement was used. In only one instance was there anything approaching the analytical long-form advocated by Paton,[10] and this was a summary funds statement appended to a profit and loss statement. Thus, the attempt to keep the statement simple and understandable is evident. The use of the summary type of funds statement makes the balance sheet and profit and loss statement necessary for a frame of reference. This indicates that most companies are still using the funds statement largely as an ancillary statement.

Table VII gives a breakdown of the types of summary funds statements used as well as an indication of the emphasis given to the exhibits.

TABLE VII

FORMS OF FUNDS STATEMENTS—AS USED IN CORPORATE ANNUAL REPORTS

Long Forms:		0
Summary forms:		28
Balanced form (sources=applications):		
As separate statements	10	
As schedules in text	1	11
Report form, remainder type: (Sources—applications=increase or decrease in funds)		
As separate statements	7	
As schedules in text	3	10
Report form, reconciling type: (Reconciling beginning "funds" balance with ending "funds" balance.)		
As separate statements	1	
As schedules in text	6	7
Total		28

Changes in Working Capital

Changes in working capital items, which are often of vital concern to the reader, were frequently omitted. A working capital schedule was given in only three cases, although in four other cases working capital items were part of the funds statement. Thus in the great majority of cases, 75%, ready reference to changes in working capital accounts was not available.

Depreciation Adjustments

Preoccupation with explanations of profits is an excellent rationale for the disturbing manner of handling the depreciation and other non-funds expense items.

[10] Paton, W. A., *"Advanced Accounting,"* Macmillan, New York, 1941, pp. 677–694 at 682.

Depreciation charges have no relevance to sources of funds, but only to retention of funds from operations. The troublesome "addback" adjustment of depreciation to profits is a reconciliation device. This adjustment does not have a place in a straightforward presentation of funds sources and applications since income determination is foreign to the flow of funds. However, if an attempt is being made to *account* for profits, then the reconciliation device is certainly pertinent. The reconciliatory nature of the depreciation adjustment should be explicitly stated. The confusion on this point, even among experts, has been greatly detrimental to proper reporting.

The handling of depreciation and allied items on funds statements submitted is shown in Table VIII. No attempt was made to reconcile net profits and net funds received from operations in one-half the cases. This would seem to weaken, though not entirely, the contention that the companies are attempting to explain use of profits to stockholders. It does introduce some very difficult concepts for persons untrained in accounting.

TABLE VIII

HANDLING OF DEPRECIATION AND ALLIED NON-FUNDS EXPENSES IN FUNDS STATEMENTS TO STOCKHOLDERS

	Number of Statements	
Depreciation shown as a separate item, but added to profit (reconciliation)	10	
Funds reported from profits before depreciation and other non-funds changes; depreciation amount given short or parenthetically	3	13
Depreciation handled through "Expenditures net of depreciation charges" (Depreciation amount stated)		1
Depreciation shown as a separate item; no reconciliation to net profit offered		14
Total cases		28

Depreciation and like items were handled in essentially the same manner by all companies regardless of size. The need for more adequate explanation of this troublesome item appears universal.

Titles Given to Funds Statements

A further attempt to have funds statements meet the needs of stockholders is evidenced by efforts to provide a suitable title. All titles pertaining to funds statements considered to be essentially internal statements for management are omitted. Titles used for funds statements in reports to stockholders are analyzed in Table IX.

TABLE IX

TITLES USED FOR FUNDS STATEMENTS INCLUDED IN REPORTS TO STOCKHOLDERS

	Number of Reports	*Per Cent*
Titles including:		
"Source and application of funds" in the title	9	32%
"Source and disposition of funds" in the title	3	11%
"Source and uses of funds" in the title	1	3
	13	46%
Title denoting working capital changes as to disposition of funds derived	1	3
Total titles using word "funds"	14	52%
Titles including:		
"Summary of Financial Operations" in the title	3	11%
"Changes in Financial Position" in the title	1	3
Total titles using "financial"	4	14%
No titles used, textual remarks as "changes in working capital"	7	25%
Titles denoting working capital	1	3
Total titles using working capital	8	29%
Titles denoting source and use of cash	2	7%
Total reports submitted	28	100%

The prevailing title is found to include the source and application or source and disposition concept. One-half of the companies also use the word "funds" in the title. Practice, at least has seen fit to appropriate the word for this specific use. In all cases where the title used the word "funds" without further identifying words, the concept of funds used was working capital. It is doubtful that much may be accomplished by the abandonment of the word funds although if a flow of working capital is the focus, a title clearly stating

this would be beneficial. However, the idea that it is not funds themselves but the forces causing the funds flows that are the important criteria precludes the centering of attention on working capital.

Apparently this has been the objective of those who would label the statement a "Summary of Financial Operations." In general, this movement has been carried on by the larger companies. As the larger companies have been the leaders in statement development, this trend may have significance.

The stockholder reports including funds statements without titles included them in sections analyzing working capital.

CONCLUSIONS

In the preceding pages an attempt has been made to outline the basic premises of the funds statement. Since the funds statement is an operational report a survey of current practices is deemed an essential starting point. The survey has given us basic information as to the current stage of development of the funds statement in practice. Besides pertinent details, the survey yielded three major results: First, the working capital concept of funds, while the most prevalent, is by no means universally used. Secondly, the survey indicated that an extremely high percentage of companies use the funds statement as an internal report only. Finally, the survey indicated the overwhelming use of the funds statement as a short summary device.

It is hoped that better interpretation of underlying considerations through funds analysis may develop as a result of the present orientation. A minimum hope is that the accounting profession may recognize the importance of the funds statement as a valuable reporting and planning device, and devote the attention necessary to formulate generally accepted principles with respect to its content and presentation.

DEPRECIATION ON A CURRENT BASIS

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WITH THE MARKED PRICE FLUCTUATIONS of the past fifteen years, there has been a wealth of material written by the economist, the accountant, and the business executive concerning the adequacies and inadequacies of presently accepted accounting methods of determining income. In regard to this problem, a study was made in order to determine the consequences of price level changes on one element of cost—depreciation—and thereby their effect on net income. An effort has been made to demonstrate how net income would have varied for a few representative firms if depreciation had been calculated on a current dollar basis rather than a legal dollar basis.

In the selection of industries for the study, the writer strove to select a group of firms that would be representative of a diversified segment of the economy rather than a group which would be representative of a proportional share of national output. The selection was as follows: a steel producer, a public utility, a durable consumer goods manufacturer, a department store, and food processor. The respective company for each category was: United States Steel Corporation, Consolidated Gas Electric Light and Power Company of Baltimore, Chrysler Corporation, Sears Roebuck and Company, and the California Packing Company. With the exception of two years for the public utility when information was taken from the annual reports to the Federal Power Commission, all of the information and data contained in this study were taken directly from the annual statements filed with the Security and Exchange Commission in Washington, D. C. by each of the respective companies.

Before beginning the actual calculations of the survey, two basic assumptions had to be made which were not too unreasonable. The first concerned a starting point. The year 1937 was chosen as the initial date and the assumption was made that all fixed assets that appeared on the annual statement of December 31, 1937, were acquired in 1937 or purchased at a time when the price level was comparable to that of 1937. This assumption is not too unreasonable if reference is made to the price indices of the years 1923 through 1936, with the exception of the depression years. Also this supposition is justified by the fact that the study is primarily concerned with the post war period which is almost ten years after the initial starting point. A second basic assumption that had to be made was that all of the 1937 acquisitions of each class of assets would be retired before any 1938 purchases were written off (FIFO). Also for purposes of convenience the Consumer Price Index of the Bureau of Labor Statistics (which has a base period of 1935–1939) was converted to a base period of 1937.

For the results of the study to be significant it is important to separate the shorter life assets from those with relatively longer lives, because it is reasonable to believe that a substantial portion of equipment purchased in 1937 will have been retired from service by 1951, while it is likely that most of the building acquired in 1937 will still be in use in 1951.

The separations of the respective companies were as follows: U. S. Steel—plant and equipment, railroad equipment, and emergency facilities; Consolidated—gas plant, electric plant, steam plant, and common utility plant; Chrysler—buildings,

equipment, and furniture; Sears Roebuck —building equipment and furniture, and delivery equipment; California Packing—buildings, equipment, and ranches.[1]

The calculations were made in the following manner: From the December 31, 1937, balance of each of these sub-divisions of plant (building, equipment, etc.) is deducted the actual retirements of 1938 in terms of 1937 dollar values. That is, the retirements of 1938 were considered to have been made from those assets acquired in 1937 but since the price index of 1937 was equal to unity no adjustment had to be made. However, when retirements of later years had accumulated to the extent of the December 31, 1937, balance, further retirements were assumed to have been made from the 1938 acquisitions corrected for price level changes between the years 1937 and 1938. This is accomplished by multiplying each of the retirements by the reciprocal of the 1938 price index (base 1937 = 100) and when 1938 purchases were exhausted, additional retirements were made in terms of 1939 purchases corrected for 1937 dollar values and so forth. To the remainder of the above was added the additions of 1938, multiplied by the reciprocal of the 1938 index. The procedure was continuous, that is the corrected building account for 1942 was compiled from the following figures: the December 31, 1937, balance, less the retirements of 1938, 1939, 1940, 1941, and 1942, all multiplied times 1.00 (provided the 1937 acquisitions had not been exhausted, in which case the retirements would have been made in terms of 1938 acquisitions), plus the additions of 1938, 1939, 1940, 1941, and 1942, each multiplied by the reciprocal of the price index of the year in which the purchase was made. Thus a figure is obtained which represents the existing buildings of 1942 valued in terms of 1937 dollars or 1937 values.

This revised value of 1942 buildings in terms of 1937 price levels is then averaged with the 1941 value in terms of 1937 dollars to arrive at an average building account on hand during the entire year of 1942 at the 1937 price level. In a similar manner, the opening and closing balances of the building account, as they appear on the balance sheet of the annual statement of 1941 and 1942 are also averaged. Then the following equation is solved:

$$X^{1942} = \frac{\text{depreciation charged to income per financial statements 1942}}{\text{1942 buildings per financial statement (average)}} \times \text{1942 buildings in terms of 1937 dollars or values (average)}$$

In this way, the unknown (X^{1942}) becomes the depreciation charged to income in 1942 in terms of 1937 dollars or values. The depreciation charge in terms of 1937 dollars is then multiplied by the price index of the prevailing years (1942). The result is the amount of depreciation that would have been charged against revenue if depreciation had been calculated on a current cost basis. A similar procedure is followed for each class of assets. The various depreciation charges are then combined to present a total depreciation charge on a current basis. From this total is subtracted the actual depreciation charged to revenue as it appeared in the income statement. The difference is the increase in depreciation (reduction of income) if a current cost basis were applied rather than an original cost basis. This procedure is repeated each year for each firm.

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[1] It will be seen that the sub-divisions of the public utility are not as applicable as would be desired. However, in a conference with the Vice President of the Company, I was assured that 95% of the assets classified by type of output (electric plant, gas plant, etc.) have a service life of more than 15 years. Therefore the results of the survey in relation to Consolidated are not influenced by the breakdown used. Also the classification of the fixed assets for the Steel Company is not as appropriate as had been hoped for, but a review of the financial reports of six other steel companies resulted in no better classifications.

THE INDEX

Before attempting to decide on a proper index, or most nearly appropriate index, one word of caution regarding the application of any and all index numbers is in order. Generally speaking any index number adjustment must be regarded not as a fact, but viewed as an indication of fact. There are any number of disparaging arguments against the application of all index numbers, but most all of them can be overcome when they are viewed in the light of "indicators" of approximate values rather than "revealers" of absolute values.

The question now comes to mind, which index should be applied to the accounts? This question will have to be answered by asking a few more questions. What type of conversion would be desirable? Would a value which represents the cost of reproducing the identical plant or piece of equipment that is now carried on the books be the goal? Or would it be desirable to arrive at a value which represents the current cost of a plant which is capable of turning out the same production capacity as previously obtained? Or would the knowledge of the loss of purchasing power of the dollars invested in the original plant satisfy the situation?

The answer to the first alternative (replacement cost) is that depreciation is not concerned with or related to replacement, but rather that depreciation is a cost of doing business. At first glance, it might be anticipated that the correct approach to this problem of revaluation would be to sit down and analyze and appraise each piece of machinery and each building in use and restate each at its market value. After discovering the expense of appraisals and lack of agreement on the part of individual appraisal companies, it might then be decided to convert each of the assets by the application of a specific index. However, the limitation of applying any specific building or specific equipment index is rather obvious. As it was stated previously, index numbers measure cost trends only. They are a reflection of a general range of price fluctuations and are intended for broad application. Therefore it would be highly illusory to apply a building cost index to the historic cost of a specific building and consider the results as approximating the current replacement value.

Since depreciation is not a function of replacement, nor is it specifically concerned with making funds available for replacement, then depreciation is not related to the future equipment of the corporation, but is rather concerned with the proper allocation of yesterday's and today's expenditures. This is especially true as many of the assets will not be replaced in kind. Capital goods are seldom replaced by new ones identical with themselves, but rather replacement typically occurs in part, and sometimes wholly, with more efficient and radically different types of equipment

Therefore, the application of specific indices to arrive at the resale or replacement value of the assets is not the solution in this conversion. The value of the assets is not as important as the fact that income has been overstated in the past because depreciation has been understated.

Let us now view the alternative of arriving at a value which represents the cost of producing the same production capacity as previously obtained. Some economists and accountants maintain that if this figure could be calculated, then they could say with confidence exactly how much depreciation has been understated because of price level changes. But unfortunately for these folks this figure involves both technological change in operations and also improved quality in the product. It is a difficult problem, if not impossible, to determine the cost of producing a ton of steel today as compared to the cost of producing a ton of steel in the early twenties.

A better brand of steel is produced today, under radically different operations than it was thirty years ago. Aside from the difficulty of calculating this figure, the author would disagree with this approach for a second reason. This method completely ignores the original cost concept and replaces original cost with some sort of mystical reproduction value. There is no reason for a departure from the original cost concept in accounting today and it is for that reason that the writer would tend to discourage the use of this method.

The third alternative must now be explored: a conversion of the depreciation charge to take into account the loss of purchasing power the corporation has suffered because of rising prices. This method is not concerned with the replacement value of specific assets, nor in the value of a plant which is capable of turning out the same level of output as previously; but is rather concerned with the restatement of the depreciation charge in terms of current dollars of equal purchasing power. This conversion is made possible by the application of a general index applied against the present fixed asset with regard to the year of their original acquisition. The present depreciation charge is then adjusted proportionately. A general index—the restatement of costs in current dollars of equivalent purchasing power—is independent of estimated replacement costs or replacement policy. The proper measure of purchasing power for our purpose is the power to command goods and services generally.

Cost must be regarded as a sacrifice of alternative means of production. The use of a general index is consistent with the fact that initial investment is made as an alternative to all other business uses of funds. After the original investment is made, it is true that the degree of alternative use of funds is restricted, but the management still has the choice of the vendor, the choice of alternative assets, or the choice of no replacement. Thus it is evident that even after the firm is well established, management still possesses some degree of alternative use of funds.

The choice must now be made between the two general price indices compiled at the present: the Consumer's Price Index or the Wholesale Commodity Price Index. The necessity of having to make a choice between the two may seem rather trivial since the Wholesale Commodity Price Index between 1941 and 1951 rose only slightly more rapidly than did the Consumer Price Index. However, there are several arguments which favor the Consumer Price Index. In the first place, there seems to be substantial doubt as to the validity of the wholesale index with respect to showing a long-term, secular, trend in general prices over the past century.[2] Secondly, the fact that everyone must pay consumer prices seems to suggest a consumer price index as a reasonable conversion factor of the value of the dollar. The problem is not to find the best index for each class of assets, but rather to attempt to express all costs in terms of a common standard. The final factor in favor of the Consumer Price Index is that it rose less than any other general index. It is hard to estimate or calculate just how far the dollar has deteriorated in value, but it is safe to assume that it has fallen at least as much as is indicated by the index of consumer prices.[3]

RESULTS AND CONCLUSIONS OF THE STUDY

The results and highlights of the survey can be seen in Tables I and II.

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[2] Carl Snyder. Commodity Prices Versus the General Price Level. *The American Economic Review*. September, 1934. Cited in "An Inquiry into the Reliability of Index Numbers," *The Journal of Accountancy*, April, 1949.

[3] Ralph C. Jones. "The Effects of Inflation on Capital and Profits: The Record of Nine Steel Firms," *The Journal of Accountancy*. January, 1949.

TABLE I

AVERAGE REDUCTION OF INCOME AFTER TAXES

	14 Year Average	*Post War Average*
Consolidated Gas	19%	34%
U. S. Steel	22%	32%
California Packing Co.	7%	12%
Chrysler Corporation	4%	6%
Sears Roebuck & Co.	3%	4%

A reference to the above table will reveal that the changes in net income have not been nearly so consequential for Sears Roebuck as compared to the public utility or the steel company. On the other hand, an average reduction of net income of 30% annually is going to have a very real and harsh effect on these two firms.

Only two results of the survey proved to be different from those anticipated before the survey began. The first of these concerned the relatively minor effect price increase had on the net income of Chrysler in regard to depreciation charges. But a review of the financial statements of Chrysler will reveal that depreciation is only about 1% of total expenses. The automobile manufacturing business is usually regarded as an industry requiring a large quantity of fixed assets. Large portions of these assets, however, are in the form of tools and dies which are used in production for a relatively short period of time and hence are written off as a current expense rather than amortized in depreciation charges.

The second unusual result of the study was the fact that U. S. Steel and Consolidated were affected almost equally. It was anticipated before the study began that the public utility would have had far more serious consequences than the steel company. There may be several reasons for this abnormality, but I believe the most likely cause was that U. S. Steel reported depreciation on an accelerated basis while Consolidated allocated depreciation on a straight-line basis. With this in mind and also the fact that U. S. Steel has been expanding their fixed assets over the fourteen year period, it is evident that the results would appear distorted when compared to a firm that reports depreciation on a straight line basis.

Although I cautioned against the selection of individual years for comparison, a few instances can be pointed out that appear abnormal. The year 1951 for California Packing Company and Chrysler, and the year 1946 for Sears Roebuck and the year 1948 for Consolidated all show unusual results that were due mainly to low profits in those years. The result of the year 1948 for U. S. Steel was caused by the post war expansion of that firm and its accelerated allocation basis. With these few exceptions, the author feels the results of the study are reasonable and definitely reveal a trend which is (or was) representative of the loss of purchasing power occasioned by the effects of price rises on depreciation charges.

The problem now arises, how shall this corrected information be presented to those concerned. A number of suggestions have been made. However, this writer is of the opinion that the only one which would not simply lead to more confusion and yet be some aid to those concerned would be to present the current cost data in supplementary form to the original cost statements. Too few people, including accountants, are clear on just what accounting attempts to perform or are in accord as to how it should be accomplished. Any attempt to incorporate a current cost basis of depreciation in the main body of the financial statements and accounts would only destroy the very purpose it was intended to perform; namely, that of aiding business executives in various decisions.

A corrected statement of this sort would aid management in problems concerning expansion and retirement. Owners would have a better understanding of their in-

TABLE II

PERCENTAGE REDUCTION (*INCREASE) IN NET INCOME AFTER TAXES DEPRECIATION ADJUSTED TO REFLECT CHANGES IN PRICE LEVELS

	Consolidated Gas, Electric, Light, and Power Company of Baltimore, Md.	*United States Steel Corporation*	*California Packing Company*	*Chrysler Corporation*	*Sears Roebuck and Company*
1938	1*	12[1]	1[1]	1*	0
1939	1*	5*	2*	1*	1*
1940	1*	2*	1*	1*	1*
1941	2	2	1	1	1
1942	9	22	5	6	3
1943	17	37	7	6	5
1944	20	23	8	6	5
1945	23	22	10	4	5
1946	23	20	5	6	6
1947	37	26	9	7	5
1948	41	51	14	6	4
1949	33	40	14	4	3
1950	31	25	8	4	2
1951	37	32	22	9	2

[1] Experienced net operating loss for the year.

vestments and possibly could be convinced that not all income can be distributed in the form of dividends. Creditors would be helped in determining a more realistic financial picture of the firm. Labor unions, if they could be convinced this was a present danger, would be able to formulate more appropriate wage negotiations with respect to the existing financial situation of the firm. Finally a corrected statement of this sort would aid greatly in the compilation of national statistics.

Therefore, in conclusion, if accounting is to aid executives in policy making decisions in the future, depreciation charges and all asset and equity accounts must be converted to a common standard of measurement—the purchasing power of the dollar. But emphasis must be placed upon the fact that this information should be presented in supplementary reports with ample explanation of the techniques involved in the conversion, and with an adequate description of the meaning and consequences of such results. This information should not be construed as a substitute for the existing statements and accounts, but rather as a complement to them.

SOME ASPECTS OF THE EVOLUTION OF ACCOUNTING FUNCTIONS[1]

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During the last hundred years, the roles of accounting have undergone changes as startling as the developments in methods and techniques of production. These changes in accounting functions, however, are less obvious to the untrained observer than the giant industrial strides which have made America the economic envy of the world. Yet the evolution of the two are closely related.

The roles which accounting has played at various times have been directly related to the needs of the businessman. It is this thesis which will be explored in the following paragraphs.

Unquestionably, many ideas and procedures in accounting have developed fortuitously or have been the result of theorizing which was entirely independent of any pressing requirement of the moment. It is also readily apparent that the pressure of government upon accounting development has been significant. With our current public regulation of many business activities, the administration of economic affairs has transcended the management of the individual enterprise. When this change has taken place, accounting has followed management into the broader area with the development of a social control function of accounts. Despite these and other motivating factors, however, changes in accounting practice, theory, and functions have come principally as a result of pressure from the needs of business, either directly or indirectly.

Some writers contend that double-entry bookkeeping originated with the Romans during the time of the republic. On the basis of information presently available, however, it would seem more reasonable to assume that the Roman accounting system continued in use, with modifications, after the fall of the western Roman Empire, and, with the pressure of trade in the thirteenth and fourteenth centuries, developed into the double-entry system described by Pacioli.

The sedentary merchant, that important trader of the early modern period, found records of his business activities a necessity. Goods bought and sold on a credit basis brought about a realization that one's memory was too treacherous to trust as a depository of such information. The adoption of the duality of form utilized by the Roman slave and the medieval agent was a step in the direction of the double-entry system. By the end of the fifteen century, its development had reached such a stage of maturity that present day accountants reading Pacioli would be amazed at the modernness of his treatise.

Pacioli described an accounting system that had recording as its chief function. It provided a needed record of credit transactions and formed the basis for stewardship reports by agents and partners. The value recorded in the accounts was that fixed at the point of exchange. The accountant had little concern with questions of valuation. Depreciation, bad debt expense, and the point at which income was realized were problems that arose in the development of accrual accounting at a point of time considerably later.

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[1] This discussion represents a summary of a doctoral dissertation entitled "An Analysis of the Changing Functions of Accounting," submitted to the University of Missouri in 1953.

The dominance of the recording function, the first in order of development, has continued down to the present day. It achieved such supremacy that its dominance was unquestioned until the development of cost accounting in the late nineteenth century. The controversy between financial accounting and cost accounting and the process of integration of the two sets of records into one are familiar to those accountants conversant with accounting history and evolution. Cost control became another important function of accounting. In their enthusiasm, many cost accountants have asserted that it is the chief objective of accounting. Current cost accounting texts frequently are written as if control were the sole function of cost accounting, neglecting to stress the importance of cost accounting in furnishing the financial accountant with cost data which will permit him to present a more accurate net income figure for the period. This one-sided emphasis of the multi-functional science of cost accounting also revealed in the activities of the direct cost school of the present time probably is typical of a new development in any field. Initially, in its process of growing, it tends to absorb the entire field. In time, perspective wins out and the new development falls into place within the general scheme of things. That this trend is apparent already in the area of cost control is evidenced by recent pronouncements by professional accounting organizations of the functions of cost accounting and its relationship to financial accounting.

Thus, from the schizophrenic and sporadic development of cost accounting, there are emerging certain widely recognized functions: cost control, income determination, and data for special studies. Through the second function, cost accounting is related directly to financial accounting as an invaluable partner in providing costs for the accurate determination of income. Through the use of predetermined costs, budgeting, statistical records and analyses, and reports on deviations from standards, cost accounting provides the basis for cost control both from the broad over-all viewpoint of profits and from the technical performance level. And, as a by-product, although some would insist it is a main product, the system yields data for special cost studies for management. Over emphasis upon any of these three major functions of cost accounting has deleterious effects upon the others. Progress lies in an integration of these functions.

During the thirties of the present century when the question as to whether accounting principles could be formulated was receiving serious attention, accountants again arose to defend the recording function and its corollary of historical cost as paramount in accounting. In more recent years, the problem of price-level changes has forced the accountant to reexamine his formerly adamant position on historical cost. Not willing to abandon the "objectivity" of historical cost, many accounts have resorted to make-shift adjustments. In this adjustment process, various subterfuges have been adopted in order to remain obeisant to the fetish of original cost and, at the same time, make the accounts more meaningful. Out of this forced reconciliation of the old and newer viewpoints is emerging a basis for operations during this transition period. The success of the accounting profession in meeting the challenges of the present day with its complexities and fast moving action will be reflected in this adjustment. Constant adherence to the old philosophy of accounts because it is "tried and true" does not furnish a firm foundation on which to erect an accounting theory which will meet present day needs. Accounting must be geared to the demands of the times. No other position is, for long, tenable.

A whole-hearted disciple of this make-

shift approach is Professor Littleton.[2] In a recent article, he emphasized that progress lies in the development of new techniques for making enlightening, supplementary interpretive analyses of data already available to today's financial statements and in the accounts. In his opinion, progress in accounting will not come by introducing index number adjustments into the ledger accounts or into the financial statements. Such should be shown as supplementary data so that the invested cost framework would remain.

In replying to criticism of the above position, Professor Littleton acknowledged that if accountants would prepare themselves in statistical methodology and then use these techniques *outside* the framework of double-entry accounts, they may indeed take up the challenge which interpretative accounting presents.[3] He apparently prefers, however, to leave the task of interpretation of accounting data to others and views the incorporation in accounting of the "effects of statistical formulas furnished by others according to their conceptions of appropriateness to their own interests" as "highly inadvisable."[4]

But the accounting profession must accept this challenge. As the interpretor of business results, the accountant must utilize all methods and techniques available to him in discharging his obligations to management and to society. A corporate investor must be furnished with information which will permit him to form an opinion as to the profitableness of operations of the enterprise. "Fool's" profits resulting from monetary inflation as well as losses from monetary deflation must be clearly indicated. Current costs must be matched against current revenues. To leave this job to some one else represents a diminution of the responsibility of the accountant in reporting to management and to the public the financial results and position of the enterprise. The continued use of invested cost in the accounts and in the financial statements after it has lost significance because of a changing price level does not permit the accounting profession to progress beyond the recording function of accounting into its broader function of protecting the interests of the various groups whose well-being depends upon the success of American industry. May has stated his dismay at this shrinking attitude thus:

> It would be unfortunate if the accounting profession should be deterred from undertaking the task of answering this question by reluctance to break what is believed to be an historical tradition.[5]

The function of the public accountant has been largely limited to reporting upon situations that have taken place in the past. As a result of the responsibility of stating whether a concern's statements reflect fairly the results of operations for the period and the financial position for the year then ended in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year, the emphasis has been upon the record function of accounting as contrasted with the projective, forward-looking viewpoint of the controller. In the public accountant's desire to be objective and impartial, historical cost has received his blessing without his fully realizing that he cannot discharge his duty to investors unless he presents an income figure that is as significant as possible in relation to present conditions. Present accounting principles and auditing standards do not meet this obligation.

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[2] A. C. Littleton, "Significance of Invested Cost," The Accounting Review, April, 1952, 168.

[3] A. C. Littleton, "A Reply," The Accounting Review, January, 1953, pages 8 to 11.

[4] *Ibid.*, p. 9.

[5] George O. May, "Limitations on the Significance of Invested Cost," The Accounting Review, October, 1952, 437. In this quotation, Mr. May is referring to the effects of monetary inflation upon profits.

The private accountant is rapidly becoming a professional man. He discharges his public service by seeing to it that accounting data disseminated to the public fairly present the financial facts of the business involved.[6] In his work in the interpretation of statistical and accounting data, in the preparation and execution of budgets, and in the operation of cost systems, the private accountant has concerned himself with the future. In this process, he has departed from the time-honored function of accounting as a record of historical events expressed in transactions with outsiders. The present and the future have become his spheres of action. The record of the past finds its greatest use only as it aids in an understanding of the future.

This concern with the future has found expression in the growing development of the field of controllership. This new area of managerial accounting represents the change which accounting is presently undergoing. It has taken accounting out of the strait jacket of a rigid debit and credit system and has put it to work for management. At the present time, the place of the controller and his functions in the business corporation are not clearly defined, however, he represents the most dynamic and virile phase of accounting.

These changes in the functions which accounting provides and the primacy of each one have been found to have their origins in the demands of the business man. Noteworthy in this evolution of accounting functions has been the reluctance of the accounting profession to accept the challenges handed to it by management. This reluctance has forced developments which at times have bypassed the formal accounting structure. Business needs, like water, seek the path of solution which presents the fewest obstacles. The development of accounting techniques which would permit accounting to perform its functions has lagged behind the needs of management in many instances. At various times, integration within the accounting framework has occurred only after significant advances have been made independently. Cases in point here are cost accounting and the more recent developments in business statistics.

At one time or another, proponents have existed for each of the functions of accounting herein discussed. Violent discussions have arisen because the assumptions underlying accounting practice have changed as the role of accounting has changed in relation to business management and to society. This role of accounting is made up of the functions which it serves. Consideration of accounting as primarily a process of reducing business transactions to a written record leaves outside the accounting pale many issues of tremendous import today. This philosophy of the accounting record had its origins in the early history of accounting but its strength and tenacity are observable in the current resistance of accounting to the recognition of other functions.

While the record function is and will continue to be of great importance, it is more enlightening to consider as paramount the function or role which is sometimes termed the "protection of equities." This function permits us to view accounting as a dynamic phase of a society which is constantly changing and presenting new problems to be solved. Emphasis upon recording as the prime function of accounting stagnates progress and confines the role of accounting within narrow limits. No assistance can be gained thereby in the development of accounting principles. Accounting becomes a relatively static and barren process.

This protection-of-equities function of

[6] T. R. Rampy, "The Accountant's Role in Our Present Economy," THE ACCOUNTING REVIEW, October, 1952, 467.

accounting is recognized by the state in its undertaking to regulate the practice of the accounting profession. By inference, it charges the members of the profession with the responsibility to act for society in determining what are the proper standards of the profession.

Governmental agencies regulating various areas of current economic affairs turn to accounting not only as a tool of control but also as a source of principles on which to base regulative decisions. More and more, the courts turn to accounting for guidance in decisions affecting broad classes of economic interests.

These illustrations show how accounting has become an integral part of the current machinery of social control over economic affairs. This social control function of accounting is a far cry from the instrument which served the fifteenth century merchant as a convenient device in keeping his accounts straight. The two, however, are tied together in one continuous process of evolution of accounting functions.

If we view accounting as being in a process of evolution in a fashion similar to society in general, then accounting becomes a growing thing, changing to serve the evolving demands of society. At the present time, a heavy responsibility has come to rest upon the accounting profession through the progressive deterioration of effective control over the American corporation by its stockholders. Looking to the accountant for truthful and accurate reports is an evergrowing body of present and potential investors, labor unions, governmental agencies and commissions, and a host of other groups interested in the operations of the corporation. In meeting the needs of these sometimes diverse groups, accounting becomes an arbiter of conflicting economic interests. The interpretation of accounting as being merely the recording of business transactions provides no useful guide to the accountant in serving these various groups in a just manner. Recognition that accounting is basically a process of reconciling conflicting economic interests clears the way to an impartial, objective, and just treatment of all interests concerned.

Every decision made by the accountant is a valuation decision fraught with possibilities of justice or injustice to some economic interest. Only if his decisions are guided by accounting principles that have validity and meaning in relation to contemporary society will they serve to meet this vital protective function. Only as the accountant rises to a realization of the significance of the role he is playing and the position of trust he occupies will the profession of accounting fulfill its highest function.

ACCOUNTING AND THE PRICE LEVEL

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During the last decade accountants have become increasingly aware of the effects produced on accounting statements by the substantial change that has occurred in price levels. It is reasonable to expect that they should also show some interest in proposals aimed at adoption of a policy of stabilization of the price level, even though implementation of such a policy would call for action primarily in the somewhat alien field of monetary and fiscal affairs.

Advocates of this policy maintain that the objective of Federal spending, taxing, borrowing, lending, and monetary operations should normally be maintenance of the purchasing power of the dollar in real goods. One of the fundamental arguments used to support such a program is the effect its announced adoption and actual carrying out would have upon businessmen's expectations and particularly upon their ability to plan future operations without the ever-threatening prospect of being overwhelmed in a sea of deflation or of being buffeted by the rising storms of violent inflation of their prices and costs.

The question as to the direct pertinence of such a program to the accountant can be better understood if the facts with respect to price level changes in the war and post-war period and the consequent difficulties those changes have caused the accounting profession were briefly set forth.

At this point, I shall be presumptuous enough to suggest that the objective of the accounting process is the significant presentation of financial facts regarding the firm's operations and condition. So far as corporate management is concerned, the accountant's primary function must be to provide information which will be useful in the making of decisions or choosing among alternatives in such a way as to maximize owners' profits and incidentally attain the socially desirable objective of making the best use of our economy's scarce resources. And what are the problems facing corporate management which require use of the data organized and presented by the accountant? A few of the more important general problems may be mentioned, such as the determination of dividend, wage and expansion policies, and the allocation of funds to specific uses within the firm. All such problems require accurate measurement of profit and invested capital, by firm, and by operation within the firm, in order that the "correct" decisions can be made by management. It is true, for example, that estimates of future profitability, which are necessary to justify expansion and allocation of funds to particular uses, must be based largely on past profit records.

Now, to return to recent price level changes and their consequent accounting difficulties, so far as these measurements are concerned.

First of all, what has happened to price levels? The Bureau of Labor Statistics' index of wholesale commodity prices averaged 52.1 during the six-year pre-war period 1935–1940. During the more recent six-year period, 1947–1952, the index averaged 104.9. In each period, fluctuations about the average were minor. This evidence suggests that a new plateau of prices at a level double that of the pre-war period has been reached. This means, of course, that the value of the dollar has been cut in half.

It is extremely pertinent to the business manager and accountant to inquire as to

whether or not this new price level might be expected to persist. An understanding of the basic cause of the change should prove enlightening. The depreciation of the monetary unit is a legacy of war finance and of the lack of adequate monetary control in the post-war period. In the early defense-war period, the Treasury and the Federal Reserve agreed to use the commercial banking system as the residual source of funds in financing war expenditures. The Reserve then made reserves available to support the volume of bank-borrowing indicated as necessary after government expenditures were financed to the extent deemed feasible through taxation and borrowing from the public. Thus reserves were no longer used to control the volume of money and credit. Instead, the amount of bank borrowing required to finance war expenditures controlled the amount of reserves made available to the banking system.

The expenditure and tax policies followed by the federal government resulted in a tremendous increase in the commercial banks' holdings of government bonds and a similar increase in their demand deposit liabilities. Expenditures made by the Treasury from its war loan accounts at commercial banks increased equally the funds available to individuals and corporations, either in the form of increased currency in circulation or demand deposits.

With the removal of price controls and even further increases in bank assets and the money supply brought about by the cashing of government bonds to obtain reserves (until the Treasury-Reserve accord of March, 1951, government bond holdings of the commercial banks were the equivalent of additional reserves), the price increases referred to were inevitable despite a substantial rise in output of consumer goods and services. The continued existence of the huge Federal debt (now over $270 billions) has acted since to prevent any substantial shrinkage of the money supply. In addition, the Employment Act of 1945 has placed responsibility on the Federal Government to maintain purchasing power and employment at a high level. (Notice the reversal during the latter half of 1953 of the earlier "hard money" policies of the present Administration.) Thus, a new plateau has been quite clearly established for prices at the higher level indicated by the figures already presented, approximately double the pre-war level.

During this period the accounting fraternity generally, following tradition and conservative practice and probably unduly influenced by the rulings of regulatory and tax agencies, have continued to compute corporate profits and measure invested capital on the basis of historical cost. Businessmen, of course, have been interested in devising accounting techniques which will reduce taxable income during a period of high reported corporate profits and corporate income tax rates. For that reason, many of their suggestions may be justifiably suspect. But economists and security analysts as well as many leaders in the accounting profession[1] itself,

[1] See, for example, Paul Grady, "Standards of Disclosure for Changing Price Levels," *Journal of Accountancy*, November, 1952, from which Table II is derived.

TABLE I*

	Dec. 30, 1939		*Dec. 31, 1945*	
Bank Holdings of U. S. Gov't. Bonds		$19,417 m.		$101,288 m.
Demand Deposits Adjusted	$29,793 m.		$75,851 m.	
Currency Outside Banks	$ 6,401		$26,490	
Total Money Supply Available to Public		$36,194		$102,341

* Based on *Federal Reserve Bulletin* Statistics.

have shown a growing interest in the determination of the "true" current earnings of corporations. (This interest has not always extended to the measurement of invested capital.) Many criticisms have been made of the accuracy of reported earnings and many suggestions to improve accounting methods.

To illustrate the wide diversity in profit figures which different accounting policies will produce the following data for corporate profits during the years 1946–51 are presented:

TABLE II

	1946	*1947*	*1948*	*1949*	*1950*	*1951*
Reported Profits (in millions of dollars)	$13,427	$17,825	$19,868	$16,506	$21,683	$17,356
Inventory Adjustment	−5,193	−5,757	−2,051	2,137	−5,126	−1,295
Depreciation Adjustment	−1,312	−2,106	−2,840	−2,709	−3,330	−4,200
Adjusted Profits	6,922	9,962	14,977	15,934	13,227	11,861
Dividends Paid	5,660	6,310	6,991	7,239	8,782	8,619

The figures indicate that true earnings were over-stated by $34 billion during this period, an amount equal to 46% of the adjusted net income figure. If the adjusted figures for profits are accepted, it is apparent that corporations paid taxes on $68 billion (assuming a 50% average tax rate) which they did not earn.

If the dividend policies of the corporations are examined it will also be seen that they were not nearly so niggardly as has been claimed during this period. It is even probable that in specific cases very unwise distributions of dividends have been made by managers accepting reported profit figures as reliable. Of course, the excess of reported over disposable income has arisen from charging income with past dollar costs of inventories and plant and equipment used in the course of business whereas revenues are measured in current depreciated dollars. Corporate reports have referred in general terms to this excess and the American Institute of Accountants has pointed out the necessity of reinvesting a substantial proportion of net income as currently reported in order to maintain assets at the same level of productivity at the end of the year as at the beginning.

Isn't this somewhat like saying, "Our measure of income is correct, but the business manager who relies on its accuracy in determining dividend policy may be sorry?" For corporate management purposes, involving both the maintenance of invested capital and the most profitable allocations of funds, costs and revenues must be expressed in dollars of equal purchasing power. And certainly dividend distributions (capital costs) and wage rates based to any extent upon profits computed by "historical cost" methods will also make more difficult the problem of maintaining economic stability.

A further evidence of the unreality of reported profits for far different purposes is seen in the statement of one of the leaders in the public accounting field that the accountant in providing adequate standards of disclosure must consider the substantial difference between past and current dollars as a material fact necessary to prevent historical income statements from being misunderstood in many of the purposes for which they are used.[2] The investor as well as the business manager may have his decisions distorted by failure to give adequate consideration to this material fact.

Present S. E. C. and tax regulations require accountants to continue to produce financial statements based largely on historical cost accounting. Whether or not acceptable for these specific purposes it has been demonstrated that statements based

[2] Paul Grady, "Standards of Disclosure for Changing Price Levels," *Journal of Accountancy*, November, 1952.

on current values are essential for management's purposes. This does not mean, of course, that management's decisions are determined merely by consideration of the information provided by accounting departments. It does appear to be too sophisticated a version of management motivation, however, to claim that the profit factor has no significant influence. So long as this is the case there appears to be a great deal of merit in insisting that accounting statements be prepared with a view to providing managements with information which will be most useful for their purposes.

In order to justify widespread adoption of constant dollar accounting it will be necessary to reconsider the bases of now generally accepted accounting principles. Continued acceptance of such "principles" merely because they have become established as rules of action under far different economic circumstances would appear rather unrealistic. There is a likelihood too that greater influence can be exerted on regulatory and tax agencies toward modification of arbitrary valuation techniques once it can be clearly demonstrated that accounting principles are on a sound economic basis. In the meantime it is unreasonable to criticize tax authorities for promulgation of accounting rules such as the basing of depreciation charges on the historical cost of fixed assets. And temporary expedients like accelerated depreciation which do not furnish a solution to the basic problems of capital maintenance and income determination but merely cause further distortions of accounting statements will require justification purely on the other grounds.

So far as future periods are concerned the difficulties involved both in devising a method of measuring earnings and invested capital and in obtaining general acceptance of such a method can be avoided if the policy of stabilization of the price level is adopted and carried into effect through monetary and fiscal measures. The advantages of such a development to accountants and above all to business managers from the point of view of the proper interpretation of past operations as well as in planning for the future are so obvious as not to bear repeating. And surely it is not too much to expect of the rules of any game that they should remain unchanged while the game is in progress. Since it is also the Federal Government's responsibility to regulate the value of money, in the interest of fairness to all concerned let us insist that the unit of scoring in the game of business should no longer be subject to sudden or wide changes in value.[3]

[3] The implications of adoption of the price stabilization program for general economic stability have already been pointed out by the author. See D. A. Fergusson, "Price Level Stabilization and Full Employment as Objectives of Monetary Policy," *Journal of Business*, July, 1951.

UNI-FIED ACCOUNTING

William L. Raby

Few will contend that accounting is an end in itself. Yet many of us, in view of its complexity in today's business world, often find ourselves so immersed in solving problems within a traditional framework that we fail to question the framework itself. Accounting is but a means to an end. If that end be an efficient, well organized business operation, accounting systems which are in themselves not efficient, not well organized, can never achieve maximum usefulness.

". . . a planned and orderly means of using classification to integrate and compress a mass of enterprise data. . . ." In such terms does Professor Littleton describe an accounting system—any accounting system. In teaching accounting, in practicing accounting, the sense of this definition seems sometimes underemphasized or even absent. Many of us have found certain plans for classifying—journals, where transactions are recorded; ledgers, where they are integrated—which produced fairly satisfactory results. The techniques are taught in every school, known to every bookkeeper.

But the formalistic, classical technique is apparently not entirely sufficient for the problems of the day. In terms of technical ability demanded, of clerical cost, of timeliness, it fails to satisfy. And so the shortcutters, the salesmen of "gimmicks," develop simple systems for unsuspecting small and medium-size businessmen. Big business, investing in substantial systems departments, also refuses to be intimidated by tradition. The accounting systems are designed to produce desired results with minimum cost using the best techniques available—but not necessarily traditional techniques.

The accounting problems of small and medium-size business cannot be solved by "gimmicks." The techniques used in many large firms are still too costly, too experimental, too dependent upon a degree of routinization not yet (perhaps never to be) achieved to be adaptable to the needs of small and medium-size business. It is in this area that the concepts of what we here call UNI-FIED (Simplified Unit) Accounting have developed.

Production costs were reduced in our factories, and distribution costs in our wholesale and retail establishments, through utilizing certain techniques. In production, a basic technique has been to use a minimum number of uniform parts to form a maximum number of differentiated products. Both process and product have been organized to this end.

In distribution, we found that pre-packaging, standardization of sizes, the utilization of many methods of routinization—all enabled us to cut costs.

In both areas, a certain degree of work organization and specialization of functions (though not necessarily specialization within stages of a function) has helped cut cost.

The concepts of UNI-fied Accounting are merely a restatement of concepts utilized in our manufacturing and distribution.

A. Accounting procedures in any given firm can be divided into five stages:

1. Recording basic data;
2. Summarizing the recorded basic data into meaningful controlled groupings;
3. Integrating the summarized data to produce financial reports;
4. Analyzing and interpreting the reports, and auditing the results of the previous stages;

5. Utilizing the financial reports.

B. Stages one, two, and three (recording, summarizing, and integrating) seem to delimit the normal area of controllable clerical cost, as opposed to four and five which fall within the professional or executive realm, and are controllable in the never-never land of policy rather than of efficiency.

C. Stages one, two, three, and four function with only two prime objectives in view:

1. Providing a record to make possible proper safeguarding of the tangible assets of the firm;
2. Providing the data reasonably needed for executive use and guidance when the data have reached stage 5.

D. Time is the key ingredient in every human endeavor and almost every human thought. Time is the greatest clerical cost, and with an expanding economy, a shorter workweek, higher per hour pay and often less per hour production, time is the goal in any trek to efficiency.

E. As in production, so in accounting. The minimum number of original recordings, so designed as to be used for the maximum number of purposes without rewriting or other substantial addition or alteration should produce lowest clerical cost.

F. As in distribution, so in accounting. Standardized charts of accounts, preprinted analysis sheets and financial statements, and organization of personnel on the basis of functional stage of work should produce lowest clerical cost.

These, then, are the six concepts of UNI-fied Accounting. They result in accounting systems where journals as we have known them and taught them are obsolete, where the ledger has been replaced by the financial statement. The well-paid, difficult-to-get trained bookkeeper is replaced by a bright-eyed, conscientious girl with no special technical training. Rolls of micro-film replace storage files. The accountant's role changes from historical hashing to profit planning.

Specifically, this is how UNI-fied Accounting works.

1. The original recording of the data creates multiple copies.
2. One copy of the original recording is created for each aspect of the transaction involved, as those aspects are delimited within the chart of accounts.
3. Unit records of each aspect of a transaction are sorted out by account number, summarized by account number, checked against a control figure, and carried forward to be integrated into the financial statements.
4. Those aspects of accounting requiring sub-ledgers are handled through a ledger copy of the original record. Postings are, to the greatest extent possible, effected by physical movement of the ledger copy from one location to another.

So-called unit accounting has often fallen into disrepute. UNI-fied Accounting is unit accounting, of course. But it is unit accounting used as a technique, not as a gimmick—used as part of a simplified, integrated, objective-dominated revamping of a given specific accounting problem situation.

BUSINESS BEHAVIOR AND THE THEORY OF THE FIRM

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As in the case of the policeman in Gilbert and Sullivan, the lot of the accountant with an academic quirk who dabbles a little here and there in economic theory may not always be a happy one. Sometimes with his mind befuddled with the "cobweb theorem," lacerated with "cross elasticities," and terrorized by "kinked demand curves," he is suddenly stopped with a dead end of "bi-lateral monopoly." Seeking to extricate himself, he usually gives up when confronted by the exit symbols in the terms of differential and integral calculus. Recently he was gladdened by a popular book about the men in economics who have risen to the economic galaxy of world philosophers.[1] From this book we may learn why men behave like economists and that economists, too, can be fun. The venerable old father of political economy, Adam Smith, was so absent-minded that he walked fifteen miles in his dressing robe before he realized where he was. Marx said that he hoped that he would teach the bourgeoisie never to forget that he suffered from carbuncles. The queer and irascible Veblen, who fastened his socks to his pants with safety pins, thought that the idea of a good joke was to return a borrowed sack to a farmer with a hornet's nest inside. This gaiety may well be of short duration.

Turning from the kind of a book described above, many accountants must have been sobered and even subdued when they read the article by Professor James L. Dohr in a recent issue of the *Journal of Accountancy*. Thoroughly impatient and annoyed, Professor Dohr attempts to tell accountants what modern economists say and think about them.[2] With little or no knowledge of accounting, they belittle our work and reports and declare that our concepts are backward-looking, incorrect, and lack significance as management tools. According to Dohr, economists have now assumed the role of management.[3] In their eyes, accountants are not much more than people who deal with "little figures" which they put in "big books." In contrast to the accountants who are mainly concerned with things in the past, economists look forward. Dohr finds the economist's concept of income to be nebulous, speculative, and without practical significance. As to the most frequently stated difference in cost of managerial salaries, interest on owned capital, and certain dividends on preferred stock, Dohr feels that anyone with a well-sharpened pencil can easily modify the accountant's reports for these differences. The question of historical versus replacement cost as a basis for depreciation, as Dohr rightly contends, is much more complicated than usually set forth by economists and becomes one mainly of the timing of capital replacement. It is true that accountants and economists differ on this depreciation question and have often confused it with the problem of replacement. Although

[1] Heilbroner, *The Worldly Philosophers: The Lives and Ideas of Great Ideas of Great Economic Thinkers.*

[2] "What They (Economists) Say About Us (Accountants)." August, 1953, pp. 167–175.

[3] "Managerial Economics," is, of course, the title of a book published a short time ago by one of Dohr's associates at Columbia University, Joel Dean. While Professor Dohr directs his main attack against Dean, he also includes economists in general. The temper of his article is shown by his references to the statements and writings of economists as "naive," "silly," "melodramatic," "pure braggadoccio," "cavalier," and so on.

Dohr offers no real criticism of the marginal analysis, he asserts that the maximization of profits by equating marginal revenue and marginal cost is a useless truism long known by accountants. Also, to refer to the analysis of fixed and variable costs as "economic" rather than "accounting," he says, is silly and naive. In contrast to the less noble motive of maximizing profit of the economist, the accountant seeks to serve a useful purpose in the economy. Economists, Dohr thinks, for the most part, like little Jack Horners, play hide the ball and then shout with glee when they discover it. An article of this kind cannot help but bring forth many questions in the mind of the accountant. Has there been some startling development, which Dohr implies, to completely change the relationship between accounting and economics? What attitude should accountants take with respect to attempts on the part of the economist to explain behavior? To what extent are the analyses and techniques of modern economics successful in explaining this business behavior? Are the theoretical concepts in economics of any value to accountants?

Without attempting to enter into the old controversy of "theory versus practice," which is now agreed to be useless and sometimes acrid in economic writings, this paper first seeks to show how the development of present day economics, of which Dohr speaks, may be better understood and discussed in light of the new emphasis in economics on the theory of the firm. Second, it will also be argued that the economic concepts built up and about the firm and those of accounting must always be considered with regard for their purpose. The question of whether or not these economic concepts can be reduced to any quantitative level which would coincide with those found in accounting will be considered. Third, a few facts and statements will be given to show that besides the basic differences in any transition from economic to business concepts, this firm analysis, certainly as portrayed in the usual book on economic theory, has other serious shortcomings. Finally, in spite of these difficulties, there is a hope and a conclusion that accounting, as an evolutionary and expanding social science, may continue to profit from a division of labor and find certain common grounds of interest with other disciplines.

ECONOMICS BEFORE THE THEORY OF THE FIRM

In political economy, as it was called in the beginning, important writers are often distinguished by the central problem with which they tried to deal. Because a business man could run his business better than he could be directed by the government, Adam Smith argued that wealth of the nation could be increased by not interferring with business. Ricardo saw the principal problem as distribution or the way which the produce of the earth is divided among the three great classes of society. Malthus saw diminishing returns setting in and population pressing upon the limited land and resources. Jevons thought of exchange as the important problem and brought out his "mechanics of utility." The eminent British economist Alfred Marshall used the theory of value as a unifying agent and broadened his theory to cover value and distribution. Many years later Lionel Robbins gave his well known definition of economics as follows: "Economics is the science which studies human behavior as a relationship between end and scarce means which have alternative uses."[4] This means that the economic system begins with given resources, capital, labor and a stage of arts or technology. Then with competing ends,

[4] *An Essay on the Nature and Significance of Economic Science*, p. 16.

a decision must be made by the price system, or some form of state control, as to what is to be produced, where productive agents (land, labor, and capital) are employed, and finally how the goods are to be distributed. Through the price system, the productive factors are allocated to industries and to firms. Economics was a broad social science which looked at society as a whole. The older political economy or economic, with the exception of Cournot and a beginning in Marshall, developed no theory of the firm as a productive unit of the economy. This development, which was to come later, was to set out the conditions facing the economic organism of the firm, the principle of profit maximization, and the reaction of the firm to a change environment.

Although economics did not in this period deal with the behavior of the firm to any extent, there was a long tradition that the subject was an aid to business management. In America economics became a required subject in all of the rapidly growing schools of business administration and for professional work in accountancy.[5] The economics of a generation ago assumed something like competitive conditions with the explanation of monopoly as a special case. Although there were references to imperfect competition as an area between the extremes of competition and monopoly, no satisfactory techniques had been brought forth to deal with market conditions with both competitive and monopoly elements.[6]

[5] This is not to say that there were not differences between the school of business and the department of economics.

[6] Turning to the developments in accounting, by the end of the nineteenth century many of the problems of modern cost accounting and analysis had appeared. A break-even chart is reported to have appeared in an article in the year 1903. A recognition of the importance of fixed and variable cost came much earlier by both accountants and economists. Accounting by the year 1910 was rapidly being extended into the field of analysis with budgets, planned costs, and other refinements. See Solomons, *Studies in Costing*, Chapter I.

THE NEW ANALYSIS

Modern economic analysis or so called "Managerial Economics" appears to be clearly associated with the new development which made the theory of the firm a central part of economic theory. Although beginning contributions are to be found in Clark's *Economics of Overhead Cost;* it was, of course, Chamberlin's *Monopolistic Competition* which brought this analysis into current textbook theory in the early 1930's.[7] At practically the same time Joan Robinson in England wrote her *Economics of Imperfect Competition*. By the middle of the 1930's most of the American textbooks had been revised and fortified by a theoretical apparatus which could deal with the intermediate ground between competition and monopoly. Accounting students who have taken a course in economics in recent years will remember that the essential point of this analysis is associated with the idea of equating marginal revenue and marginal cost. (Marginal cost in the simplest language is the increase in the total cost divided by the number of added units of production.)

Costs are first divided into the two classes of fixed and variable. Fixed cost per unit of product will always decline as volume is increased. After a time variable cost will rise due to the fact that increasing units of labor or material are combined with a fixed agent (plant). As the variable increase will ultimately more than offset the decline in the fixed cost, the average total cost is also viewed from the standpoint of marginal cost. In order to secure the greatest *total profits*, production would be increased as long as the income (marginal revenue) is greater than the cost (marginal cost). Monopoly, competition, or

[7] The student who wishes to review this development should begin with the article by Piero Sraffa under the title of "The Laws of Returns under Competitive Conditions," *Economic Journal*, December, 1926, pp. 535–550.

monopolistic competition are given as cases of this marginal analysis, and its core is the principle of profit maximization. It was now possible to discuss theoretically the point of operation with the greatest profit, the least possible loss, (where some of the fixed costs are covered), and the case where the firm would not operate at all. Since this new analysis did not deal with competitive conditions alone but with various degrees of monopoly as well, it became necessary to introduce selling costs which added another variable to be dealt with. To many it now seemed that the economist and the accountant had reached certain common ground in the management problem. With this new mechanism as a central part of economic theory, it is not difficult to explain why there appeared to arise a "new" or "managerial" economics which apparently could speak in the same concepts and ideas of accounting, analysis and profit planning.

CONTRASTING CONCEPTS AND PURPOSES

The contrasting purposes and concepts of the economist's theory of the firm with accounting practice and analysis must be considered in light of what each group is trying to accomplish. The analysis of the firm may be made on at least three different levels or approaches. First, the accountant must provide necessary financial accounting. Tax returns must be prepared and financial reports must be submitted to the owners of the business. Here, all data must be given on a quantitative basis and in accordance with generally accepted practices. The accountant generally is not concerned with a concept or principle which relates to the whole economy and not to the firm. Second, with an entirely different approach, the economist by using the firm as a producing unit of the economy and assuming the "principle of maximization," seeks to provide a satisfactory theoretical explanation of the firm behavior under different circumstances and environment (market, demand, costs and volume, etc.). Third, there is also an intermediate ground of analysis of management, profit planning, and business decisions. In this wide area statistical studies, flexible budgets, break-even analysis, volume and cost studies, or reports to show the effect of changes in the price may be found. Here the distinction between the work of the industrial engineer, cost accountant, or research worker in economics becomes less distinct if not dim. For example, it would be impossible to decide whether a study of index numbers to adjust depreciation charges on account of changes in the price level had been done by an accountant or by an economist.

At least some, if not a considerable part, of conflicts can be better understood if not removed by a consideration of such different levels and purposes. It is not correct to say that if it is not possible or desirable to incorporate the theoretical concepts of economics into actual accounting and quantitative data, then these concepts and explanations are fanciful, erroneous, and without value. On the other hand, it would be equally incorrect to assert that management problems make necessary a complete recasting of accounting into the factors and forces described in the economist's theory of the firm.[8] Certainly, our present systems of accounting can go only a part of the way in describing the many forces which affect business behavior. For example, the salary offered by a corporation to a young professional accountant is an important fact affecting his decision to remain in professional practice. In making his decision there might be a value placed on the privilege of working for oneself. It is true that on March 15th, one might have

[8] It will be noted that Joel Dean does not advocate any attempt to recast all accounting records into the economic concepts. *op. cit.*, p. 27. Few economists are better aware of the limitations of the marginal analysis.

to choose between serving two clients. Without doubt, there are reasons for operating businesses and for business behavior other than pecuniary rewards. The forces of behavior cannot be reduced to debit and credit.

At best, accounting data can only approximate the structure of the firm as outlined in economic theory. Looking at the problem from only the cost side, this fact can be illustrated by a review of a few of the basic differences.[9] Even in fixed and variable costs, often stated as the same in both disciplines, there are not unimportant differences. The accountant often for practical reasons classifies certain expenses of variable nature as overhead; while the economist's fixed cost is stated to be the same as overhead. In accounting costs by their nature are not inherently fixed or variable. Accountants often at first consider certain expenses as semivariable before putting them into a final classification. The economist is apt to speak of all costs as either production or selling costs in contrast to the larger classification of manufacturing, selling, general and administrative, and other income and expense. In theory selling costs are defined as those expenses which either change the demand curve or cause it to shift to the right (advertising); similar costs (distribution) in accounting include more than those of the economist such as delivery expense, warehouse expenses, and sales administration. Economists speak of the added cost of one single unit (marginal); accountants in flexible budgets may compute costs for another batch of units (differential). As a rule business men work on a certain calendar time period; in textbook economics the short run (or intermediate) period is time enough to vary the rate of production but not long enough to expand the plant. "The short run normal period is considerable less than a year in airplane production; it is perhaps 20 years in the case of an apple orchard."[10] It is only in certain cost work that the "calendar" versus "operational" concepts are brought anywhere together. Space does not permit of any discussion of many other troublesome and complicated problems such as the differences in the base for depreciation, the idea often given by the economist that the annual depreciation is to be regarded in the nature of a replacement fund, determination of capital value, or multiple products. Actually, only a few economists have introduced the features of selling costs and multiple products into their theoretical structure. Enough has been said to show that the person who attempts to translate accounting data into the theory of the firm is beset with many difficulties. Perhaps at best with our present knowledge, only an approximate transition can be made.

PRESENT STATE OF THE MARGINAL ANALYSIS

An appraisal of the problem of managerial economics should make clear something about the present status of the marginal analysis.[11] In view of the statements given above, it is difficult to see how the business man can "maximize" if he does not have facts and data on which he can base his judgment. Even if these data are available, there are other reasons for concluding that the theory is not in a very satisfactory state. There seems to be little doubt that during recent years there has been considerable interest by both accountants and economists in studies dealing with such

[9] The demand or income side is equally subject to criticism. Businessmen cannot have much knowledge of the demand curve as given in theory. Although he may be able to guess to some extent the effect of price on the amount sold, he frequently assumes a fixed price for his changing volume calculations.

[10] Stigler, *The Theory of Competitive Price*, p. 148.

[11] According to Professor Dohr, as stated before, accountants have known about this principle for a long time. He also goes on to state that the whole maximization idea should "be laid to rest" as a useless truism. *op. cit.*, p. 175.

problems as cost and volume. One important study was made by the NACA on the variation of costs with volume.[12] The Committee found clear evidence of the importance of the concept of fixed and variable cost and that marginal calculations do afford the basis for some management decisions. In its study of about fifty large firms, few firms were able to express volume in terms of physical productivity and had to devise some other measure for an over-all volume. The Committee also stressed the fact that there are many non-volume factors which affect cost such as changes in plant, methods, hours of work and other items.

In economic journals the marginal analysis has provided one of the leading controversies of the past decade or more, and there is an abundance of literature available. Some of these studies have cast serious doubts as to whether businessmen think in terms of marginal revenue and marginal cost at all.[13] One well-known theorist, Boulding, for example, finds the whole Chamberlin-Robinson analysis to be unsatisfactory and proposes a reconstruction of economic theory through a balance sheet approach. In this opinion the former emphasis on income neglects inventory changes, conditions, of liquidity, investment programs, and many other factors. A general criticism has been that the two-dimensional textbook theory did not allow for all of the variables involved.[14]

There is no satisfactory way of treating non-pecuniary motives which without doubt are important. No satisfactory treatment has been worked out for selling costs. In the case of imperfect competition where there are two or a few sellers, there appears to be no determinate solution because of the factors of uncertainty and lack of knowledge. What one firm will do may depend on what its manager thinks his competitor will do and what effect this action will have on his firm.

TOWARD A BETTER UNDERSTANDING OF BUSINESS BEHAVIOR

Few accountants and not many economists will admit or even pretend to like theories—even good ones. The old cliché of "all right in theory but wrong in practice" is a good defense against any sort of theorizing. All agree that students of business behavior should study how business men *do act* rather than to simply speculate how we think they should act. Never in our history has there been such an abundance of facts and statistical data available; yet these facts *alone* tell us nothing. It is elementary to point out that facts must be arranged, and there must be patterns and some order. Theories and ideas are valuable in that they may suggest new approaches, directions, and lines of inquiry. Accounting, as shown by some of its recent literature, is a rapidly expanding and evolutionary social science. Anyone who desires to extend its frontiers is less well equipped if he is entirely unacquainted with the concepts, theories, and general ideas of others who have looked at the problem in a different light or time. Actually, as we know among ourselves, accountants cannot deride the "philosophical" approach of another discipline and boast of our objective reality. Students have to be reminded that profits are estimates. Costs and inventories are sometimes the best figures we can get to serve a

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[12] Three bulletins published by the National Association of Cost Accountants: *The Variation of Costs With Volume* (June, 1949); *The Analysis of Cost-Volume Profit Relationships* (December, 1949); *The Volume Factor in Budgeting Costs* (June, 1950).

[13] See H. S. Ellis, *A Survey of Contemporary Economics*, pp. 11–15.

[14] Joe S. Bain in an article on price and production policies summarizes the problem as follows: "Any applicable theory must be of a multi-variate, multi-dimensional character, including numerous functional relationships in addition to those between cost and output and between price and output, and . . . quantitative verification of such elaborated models in an uncertain world may not be at all feasible." Ellis, *op. cit.*, p. 142.

purpose. This whole problem of business behavior is not to be restricted to a little academic box created and measured by a college catalogue. Just as the tariff may be of interest to the student of law, economics, sociology, or even military science, the concept of income likewise may be of concern to the accountant, the attorney, or the economist. There is no exact point of time when we pass from biology into chemistry or when we leave cost analysis and go to the empirical investigation of a theoretical economist.

Examples of common ground and interest between accounting and economics are not difficult to find. In fact, our entire program of professional training in colleges has been set up on the basis that such an interest and mutual benefit did exist. The NACA bulletins on costs and volume mentioned above are examples. A few years ago at the request of the American Economic Association, Dun and Bradstreet made a survey among senior officers of industrial concerns to obtain their opinion on the value of economics and business courses as preparation for careers in business. About two-thirds of the respondents were presidents of their concerns. The highlight of this study was that these executives believed that about forty percent of college time should be spent on economics and business. Of this time, it was their opinion that about one-half of the time should be devoted to economics and the other half to business courses. Not all cost accountants abhor the theoretical concepts of the economists. Devine in his recent *Cost Accounting and Anlaysis* provides an entire section of nearly two hundred pages of analysis and profit planning in which he presents the curves, figures, and conventional apparatus of the economics textbook. Most of the new textbooks on cost accounting contain material on such techniques as the breakeven chart, and marginal income analysis.[15] It is difficult to draw much of a line between chapters called comparative costs for managerial decisions and some of the material described as "managerial economics." In the recent study of income by the American Institute of Accountants, it is significant that attorneys, economists and accountants were all invited to participate. Even the Supreme Court of the United States was perhaps at one time influenced in the famous decision of Eisner vs. Macomber by the realization test of income of Professor Seligman and his "horse and foal" analogy. The reader will by this time have thought of numerous other examples of this interest, even much better ones. Accountants do not appear to be alarmed over a possibility that certain members of their group will develop some new and terrifying branch of knowledge known as "accountometrics" or resort to occult practices. Always in the future useful, and perhaps exciting, problems remain to be explored. Instead of the accountant *alone* striving to serve a useful purpose in the economy and the economist jumping to and fro trying to maximize profits (as portrayed in the article by Dohr), may not both the accountant and the economist, in spite of their differences in approach and in accordance with the purposes and by-laws of their respective professional organizations, contribute to the knowledge of business management and business behavior and thus serve a useful place in the society.

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[15] See Lang, McFarland and Schiff, *Cost Accounting* (chapters 26 and 27) for profit planning and costs for managerial decisions.

THE SEMANTICS OF ACCOUNTING

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In teaching "engineering economy" to technical students the objective is not to make economists, entrepreneurs or accountants out of them. It is simply to impart some knowledge of the concepts and terminology employed by these professions, particularly those ordinarily encountered in engineering enterprises. Of the three fields, accounting is probably as important as any, but the student is often annoyed to find its language quite unstandardized, by comparison with that of engineering and science.

From the engineering viewpoint, accountants are usually specific enough in their concepts, but not in their labels. Like Humpty Dumpty, the profession is inclined to say:

"When I use a word, it means just what I choose it to mean—neither more nor less."

A related weakness is to use one term in more than one meaning, or to use several terms for the same meaning, thus causing Mr. Justice Jackson, dissenting, to voice his exasperation in these uncharitable words:

"It may be said that in commercial or investment banking or any business extending credit, success depends on knowing what not to believe in accounting. Few concerns go into bankruptcy or reorganization whose books do not show them solvent, and often even profitable.[1]

The engineering student also sympathizes with the senator (before World War II, but name and circumstance forgotten) who solemnly announced that the national debt could be easily wiped out, by merely expropriating the obviously useless "capital surplus" which he found on nearly every annual corporate balance sheet.

Consulting his limited personal library for instance, "The Dictionary of Economics,"[2] this is what the young scholar finds:

"In a business enterprise surplus is the sum of the *assets* less the sum of the *liabilities*. It is usually designated as *capital surplus*. Capital surplus may be an *earned surplus* or a *paid-in surplus*."

Mr. Justice Jackson would probably say that this is a good example of what *not* to believe—on the balance sheets of the Standard Oil Company of California, the Pacific Gas and Electric Company, and the Anaconda Copper Mining Company, that difference is exactly *zero*. Humpty Dumpty dissenting, might explain that it depends upon what you *choose* "capital surplus" to mean—it might mean *net worth*, especially since the latter is not defined in the "Dictionary." Moreover, one might *choose* to have "liabilities" mean "equities," in which case *true liabilities* would mean something less.

Before seeking professional advice on these questions the engineering student has one more alternative—he may consult page 9 of "How to Read a Financial Report,"[3] which for the benefit of widows and orphans, says:

"Two different kinds of surplus frequently appear on company balance sheets. The first type listed is "Earned" surplus (item 27) . . . . In addition to the earned surplus, our company also has a "Capital" surplus (item 28) . . . which the balance sheet explains arose from selling the stock at a higher cost per share than is given as its stated value. A little arithmetic shows that the stock is carried on the books at $2.50 a share while the

[1] Federal Power Commission versus Hope National Gas Company (Supreme Court January 3, 1944), 51 PUR (NS) 193–235.

[2] Harold S. Sloan and Arnold J. Zurcher, 1949, New York, Barnes and Nobe, Page 240.

[3] Merrill Lynch, Pierce, Fenner & Beane, 1947, New York.

capital surplus amounts to $4.75 a share. From this we know that the company actually received an average of $7.25 net a share for the stock when it was sold."

This is clear enough—surely the senator, now informed, would refrain from taking widows' mites, even to liquidate the national debt.

Now that we understand the *concept* of capital surplus, let us see how various corporations label it. Standard of California and P. G. & E. simply say "capital surplus" and let it go at that. Anaconda (1952 report, page 21) says:

Capital Stock.................	$433,716,400
Surplus—see note G...........	$228,796,027

Note G supplies the figure we want by saying, "Consolidated Surplus includes surplus arising through capital transactions in the amount of $11,896,328."

Standard Oil Company of New Jersey (1952 report, page 20) says:

Capital:	
Stock of Standard Oil Company (New Jersey), parent company................	$908,566,380
Excess of assets of consolidated companies acquired over cost	36,053,009

One has to go back to the 1950 report (page 32) to find out how the *parent* company's capital was actually divided:

Capital:	
Standard Oil Company (New Jersey), Parent Company Stock issued.............	$757,138,650
Amount in excess of par value	149,539,527
Excess of assets of consolidated companies acquired over cost	36,514,401

Union Oil Company of California (1953 report, page 30) shows capital surplus separately for the two kinds of stock:

Credit in excess of par or stated values of shares	
Common (premiums on sales and other issuances)	$ 14,450,902
Preferred (credits arising from retirements).............	282,473

American Telephone and Telegraph Company (1953 report, page 35) says:

Premium of Common Stock, Amount received in excess of par value.................	$1,141,266,864

Southern California Edison Company (1951 report, page 23) says:

Paid in surplus—premium on capital stock..............	$ 6,535,968

The only conclusion which our engineering student can draw, is that unless the more meticulous wording can be standardized, the accountant had best employ the conventional term "capital surplus," using "notes" for such detailed explanation as circumstances may require.

EQUITIES

Earlier in this discussion Humpty Dumpty implied that when the word "liabilities" appears on a balance sheet, it may mean more than *true* liabilities to the *stockholders* as well as to the creditors —in short, *all equities*. Unfortunately "equities" means common stocks to some people, and general legal rights to others. "Assets equal Equities" is a good theoretical accounting equation, but the second term is hard to find on a balance sheet.

Of the companies already cited two do not even follow the good old custom of balancing assets against equities. Standard of New Jersey equates "net assets" to "share holders' equity." Union does the same but uses more words—"Total working capital, properties and other assets, less total long term debt, self-insurance allowance and deferred earnings" equals "Share owners' equity." All the others, using conventional balance sheets, merely say "assets" equal "liabilities." One must go to other balance sheets to observe real variation in naming the concept of "equities."

Montgomery Ward & Co., Jan. 31, 1954—Liabilities and Stockholders' Investment

Walworth Company, 1953—Liabilities (and) Capital
Kaiser-Frazer Corporation 1951—Liabilities and Stockholders' Investment
Kaiser-Frazer Corporation, 1952—Liabilities and Capital
General Motors Corporation, 1952—Liabilities, reserves and capital
General Electric Company, 1952—Liabilities and Share Owner's Investment

Our engineering student is not too puzzled by all this, but he does wonder why a power-shovel cannot be called a power-shovel.

NET WORTH

Since the "Dictionary of Economics" seems to have confused "capital surplus" with "net worth," let us concentrate on the latter for a while. Omission from a "Dictionary" is not unexpected, but it seems incredible for "How to Read a Financial Report" to leave it out. Even such common synonyms as *Ownership* and *Proprietorship* are unmentioned in the pamphlet's index. Of three available textbooks on engineering economy, none indexes the term, but one[4] offers this equation:

"Assets − Liabilities = Ownership"

and adds:

"The excess of assets over liabilities is the claim Henry Smith has on the assets he possesses, or is his net worth or ownership."

Conventional balance sheets usually show assets on the left and liabilities *and* net worth on the right. The text (page 114) expresses this in the equation:

"Assets = Liabilities + Ownership"

and adds:

"The item 'Ownership' is sometimes referred to as 'Proprietorship.' "

[4] Woods, B. M. and De Garmo, E. P., *Introduction to Engineering Economy*, New York: Macmillan Company, 1942.

With the concept "net worth" clearly understood, let us now see how our oil companies and utilities express it in their annual reports. As stated before Standard of New Jersey and Union of California, equate "net assets" to "shareholders' equity." The others describe "net worth" in these terms:

Standard Oil Company of California, 1952—Capital Stock and Surplus
Pacific Gas and Electric Company, 1953—Capital Stock (and) Surplus
Anaconda Copper Mining Company, 1952—Capital Stock and Surplus
American Telephone and Telegraph Company, 1951—Stated Capital and Surplus

For further variety we may consult other reports:

Montgomery Ward & Company, January 31' 1954—Stockholders' Investment
Walworth Company, 1953—Capital
Kaiser-Frazer Corporation, 1952—Capital
Kaiser-Frazer Corporation, 1951—Stockholders' Investment
General Motors Corporation, 1952—Capital Stock and Surplus
General Electric Company, 1952—Share owners' investment

Among these terms it is hard to choose. Perhaps "capital stock and surplus" is as good as any, particularly if we have already agreed on "capital surplus."

PROFIT AND LOSS STATEMENT

If space permitted, it would be interesting to supplement our balance sheet exploration by a similar examination of what used to be called the "Profit and Loss Statement." Let us be content, however, merely to list the titles by which our random-chosen corporations now identify these important documents.

Standard Oil Company of California, 1952—Consolidated Statement of Income
Pacific Gas & Electric Co., 1953—Statement of Net Income
Anaconda Copper Mining Co., 1952—Statement of Consolidated Income

Standard Oil Co. of N. J., 1952—Consolidated Statement of Income
Union Oil Company, 1953—Consolidated Earnings
American Tel. & Tel. Co., 1953—Consolidated Income Statement
So. Cal. Edison Co., 1951—Statements of Consolidated Income
Montgomery Ward & Co., Jan. 31, 1954—Statement of Earnings
Walworth Co., 1953—Consolidated Income Statements
General Electric Co., 1952—Current Earnings
General Motors Corp., 1952—Statement of Consolidated Income
Kaiser-Frazer Corp., 1952—Consolidated Results of Operations

Again our student is not too perplexed, but he wonders who discarded the old fashioned but somewhat pessimistic terminology—semanticists or *optimists*?

CONCLUSION

It is not likely that the accounting profession will standardize its terminology merely to please the scientific and engineering world, in or out of college. Even if it were willing to do so, *management*, silently respectful in the presence of technical etymology, might have definite and reactionary opinions on any matter of commercial nomenclature.

Common stocks, however, must now be sold to everyone with forty dollars more than his monthly needs. Soon, perhaps, the long neglected "widow and orphan" will develop a little intellectual curiosity as to what these important dollar-describing words really mean, thus hastening the semantic millennium of corporate accounting.

NEW DEVELOPMENTS AND SIMPLIFIED APPROACHES TO MUNICIPAL ACCOUNTING*

W. K. Newton
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Around the turn of the century only a few cities along the Atlantic seaboard attempted to publish financial statements concerning their activities. These were only partially complete and lacked a lot of presenting uniform fiscal information that the tax payer and public really needed. Most reports of that time were merely descriptive activities of the departmental operations with much time given to minor details of little value to any one.

About 1910–15, Municipal Accounting research under the Metz Fund, Bureau of Municipal Research of the City of New York, produced the first organized materials that could be called a treatise in Municipal Accounting. Other treatments followed, such as Eggleston, Oakey, Cleveland, Bruere; and with the aid of the Municipal leagues that were beginning to take an interest, we soon began a very serious development of the specialized field of Municipal Accounting.

In the 1930's we saw further developments. Professor Morey came out with a treatise that gave more simplification to a rather complex method of accounting that had been used by the earlier writers and this was a real step forward. Also, a National Committee on Municipal Accounting worked tirelessly on what was thought to be some further needed reforms, perfecting and explaining much of the terminology of the new field of accounting. Some of their recommendations were valuable and some did not prove to be so useful as I will point out later.

The American Institute of Accountants, various state Societies of C. P. A.'s State Municipal Leagues, the National Association of Finance and Accounting Officers, and many others have made remarkable contributions. Since all states have some features that differ somewhat from all others, it is next to impossible to have complete uniformity in all respects of the subject.

I made a very careful study during 1927–1928, while doing graduate work at Northwestern University, of the reports of about 200 cities in about 40 states. This study revealed quite a variety of methods of accounting. Some were completely "commercial," a few were using the *Complete Budgetary* method, others a simple cash receipts and disbursements plan, and still many did not have any particular method or plan. Many reports were very poorly constructed, and one was not able to determine the financial condition of many of the funds in the report. Even some audit reports merely gave a sort of condensed statement of cash with no effort to prove the fund position from one period to the next. Only the cash statement seemed to be of importance. I have since kept in close touch with many of the cities of the several states and find that while there is improvement, there remains much to be done before we can make the proper comparisons as most industries are able to do. In this particular, even the Census Bureau, in its efforts to prepare statistics of cities of various population classifications, finds it rather difficult. Because of the many variations in funds and the statements that are submitted to the Census Bureau, the resulting studies are at best only rough approximations, and in many

* Presented at the Arkansas Accounting Conference, Southern State College, Magnolia, December 3, 1953.

instances, hardly worth the time and effort put into these studies.

PURPOSES AND CHARACTERISTICS OF MUNICIPAL ACCOUNTING

Municipal Accounting deals primarily with fiscal facts relating to the operations of a city, town or other subdivision of the State. Governmental Accounting, in a sense, is more embracive, including the above and that of the State and Federal Government. Our topic will deal with the former. The purposes are:

(1) Control—For management
—Limitations of acts of officials
(2) Information—To the public and taxpayer
—Problems of Taxation
—Plans of expansion and future planning
—Utility rates
—Investments in municipal bonds

Some of the characteristics peculiar to municipal accounting are:

(1) An accounting for funds
(2) The use of budgetary accounts
(3) The kind and nature of financial statements

CLASSIFICATION OF FUNDS

Since municipal accounting deals chiefly with accounting for funds, it is very important that we have the proper classification. One of the best classifications is the *functional* and the following list is representative:

(1) General, Current or Operating—the ordinary operating fund
(2) Sinking or Debt Service—bonded debt and its retirement
(3) Capital—fixed asset and long-term debt and capital outlays
(4) Utilities—like the commercial treatment unless combined and operated with the General Fund
(5) Trust and Agency—special and according to indentures and legal requirements
(6) Special Assessments—paving, sewer, etc. paid by property benefited.

You will note that in the above classification, the first three funds, are the *major* funds that will or should require what is known as "budgetary" accounts in order better to reveal the true position and condition of the respective fund at a given time and its operation for the period under review. The other funds, as a rule, do not require anything more than a good commercial method of accounting, and hence, are not too important, accounting-wise and in most instances financially. A large cash balance in the Paving Funds, for example, has no real significance so far as the financial position of the city is concerned. This list of funds is substantially the one used by the Metz Fund Research Bureau and other early authors. More recent writers have followed only partially this list. About 1936, a National Committee on Municipal Accounting came up with a group of funds that differed in many respects with the above, and to be frank about it, its fund classification has not improved our accounting. On the other hand, it has been a disservice, and many cities have not and will not follow its suggestions. The Capital Fund was dropped and other methods of fund accounting substituted. Bond funds, for example, became a separate entity for accounting instead of a phase of the expendable part of the Capital Fund. Further, a statement merely listed fixed properties with a balancing figure sometimes called "total properties" on the other side if a balance statement were made. A companion statement of bonded or long-term debt was similarly prepared with a balancing figure called "Future Taxing Power" or "Deferred Charges to Future Taxation." These three statements—Bond Fund, Debt Statement and Fixed Properties—with their variously termed balancing figures have detracted from and have confused the proper preparation of this Capital Fund. It is true, the part that most concerns the city is the cash available

for expenditure and the authorization to expend or the appropriation. The proper statements if combined will reveal readily the past stewardship of the governing bodies, particularly as to the complete capital outlays, the care of properties, their disposition, etc. This is no small part of the over-all responsibility of local governments. Some cities, in their published statements, will attempt to use the separate statements, but a large number do not follow the new plan.

Further, we find the "Working Capital Fund" with its variable use, to be confusing and not too well accounted for. It is listed as a major fund, while as a matter of fact, it is almost entirely an account of the operating or General fund. You may have several such operating accounts and all will be only activities of the General fund. It is a small matter of bookkeeping to separate certain activities if needed for the management. To classify this material as a district fund and treat it as a separate entity, not only is confusing but is often misleading. The space that some authors give this fund would lead you to the notion that it is the leading fund. It therefore becomes the "tail wagging the dog." Most cities ignore this fund designation and show only brief analyses where needed in reporting.

Again, we note the efforts of some more recent authors in their uses of a large number of "Revenue Funds." If the statutes of the state, ordinances and charter provisions of the cities provide for such funds, there is no alternative to their use. However, these funds often perform the functions of segments of the ordinary General fund, and may be combined and made a part of the General fund, particularly for statements of over-all operations. Often the treatment is a cash basis one, limited to the actual cash as to expenditures and there are no appropriating limitations. A commercial method of accounting would suffice.

It is further noted in some more recent texts in municipal accounting that an extensive discussion and treatment of such funds as Trust, Agency, and Special Assessments, actually consume more space than the full treatment of the three major funds. There may be a few exceptions to a general rule in some cases, due to certain statutes, but as a class, these funds do not require budgetary accounting, and therefore, any well devised plan of commercial accounting would be adequate. There cannot be any involved method of accounting, and the simplest plan possible may be used. The city at best is merely the custodian of the funds, and it is ridiculous to try to make a complete budget accounting for them.

USE OF BUDGET ACCOUNTS

I have noted above that some cities use a commercial method of accounting, due to the fact that there are no statutes requiring the use of accounts such as Appropriations, Estimated Revenues, Reserves for Encumbrances, Unappropriated Surplus, etc., or budgetary accounts as we have termed them. In those instances, the accounting and reporting are quite simplified, but by far the larger number of cities are controlled by budgetary laws enacted by the state legislature or by the ordinances and charters of the cities themselves. We generally predicate our treatment of the major funds on the principle of the use of the minimum budgetary accounts, for otherwise, a good commercial method or plan would suffice, even though there were quite a few funds.

In the early statements that followed the Metz Fund Research Bureau and other studies, there existed quite an extensive treatment of budgetary accounts as well as the proprietary accounts. This type of account includes all actual assets, liabilities, income and expenses, just like the commercial plan. This called for two parts of the balance sheet statement of the Fund. One the *Proprietary* and the other *Budgetary or "Fund,"* such as the following:

Proprietary Part—Balance Sheet
General Fund—City of Magnolia
December 31, 1952

Assets			*Liabilities*	
Cash		$xxxxx	Warrants Payable	$xxxxx
Taxes Receivable	$xxxx		Surplus	xxxxx
Less Res. for Loss	xxx	xxxxx		
Other Receivables		xxxx		
		$xxxxx		$xxxxx

Budgetary or "Fund" Part—Balance Sheet
General Fund—City of Magnolia
December 31, 1952

Requirements & Surplus		*Authorizations & Reserves*	
Budget Requirements	$xxxxxx	Appropriations	$xxxxxx
Unapplied Surplus	xxxxxx	Reserves—Contracts	xxxxxx
Available Cash Sur	xxxxxx	Open Mkt. Orders	xxxxxx
		Purchase Orders	xxxxxx
		Miscel	xxxxxx
	$xxxxxx		$xxxxxx

In the accounting and recording processes, it was necessary to make extensive collateral entries so that both parts of the balance sheet would be developed properly. This was a tedious, technical and often duplicating process, and while it was used to some extent, it was really too complicated for most small cities at least. New Rochelle, N. Y. used it and many others at an early date, but in recent years, only a few California cities have continued its use with some variations. There is no doubt about its completeness but it had to have expert interpretations as well as exactness in its preparation. It was obvious that this plan of statement would never suffice for the average city, as it required experts to prepare and cities often do not have many employees that would qualify for this kind of accounting and recording.

As indicated earlier, Professor Morey of the University of Illinois, was one of the first to publish a treatise that eliminated a large part of the features of the *Two Part or "Dual"* form of Balance Sheet. Only the barest minimum of budgetary of "Fund" accounts such as Appropriations, Estimated Revenues, Reserves for Encumbrances, and Unappropriated Surplus, remained. These were to be combined with the other accounts then known as "Proprietary" and then became only one balance sheet and only then if prepared before the close of the fiscal year. Estimated Revenues, Appropriations and sometimes even reserves for Encumbrances were closed out and the balance sheet contained only the actual assets, liabilities and (Unappropriated) Surplus. This meant quite a simplified process and is now in use in most cities using the budget plan of accounts.

Since we have gone through quite a development in the process of preparing the balance sheet statement of the several funds, it is a wonder that there is considerable common ground and knowledge. The terminology is better understood. The functional classification of funds, the use of commercial practice when the fund does not require any accounting for budget accounts, and our proved operating statements all make for better methods of recording and reporting.

STATEMENTS NEEDED

The main statements in this field of accounting are not far different from those

required in commercial business and industry. We use the fund approach to separate and classify our accounts. The fund itself often may become a rather involved statement as I have indicated. The funds using budget accounts are less likely to conform to the commercial type of statement, because we ordinarily do not list assets that will not be realized or reduced to cash within a short time. Neither do we use liabilities that are not to be liquidated shortly. Fixed assets or deferred charges, for example, have no place in the General Fund Balance Sheet. We predicate a budget on revenues that will be collected and upon a surplus that will become cash. Therefore, all balance sheets of expendable funds are not so limited.

The operating statements of a municipality often give trouble and are often poorly prepared. There are several statements that may be found that reflect certain aspects of operations. The Cash Receipts and Disbursement statement is often found and it has its place in reporting, but does not explain the change in the fund condition from one period to another unless the accounting is of the "pure" cash basis. In some cash funds, this statement adequately explains the operations. A statement that is found most frequently is known as the *Statement of Revenues and Expenditures*. This statement should reveal the exact changes from period to period in the balance sheet position of the fund, regardless of the method of accounting. The revenue part of the statement will show the ordinary income or earnings as well as the extra-ordinary, non-recurring, loan, borrowings, gifts or whatever source. Likewise, the expenditures will reveal the ordinary operating expenses or costs as well as all capital outlays, loans, grants, and the like. If properly prepared, the combined statement will show the increases or decreases over the estimated revenues. The expenditure part of the statement will show likewise the actual expenditures in comparison with the proposed expenditures or the appropriations as approved. This complete statement is very important and is comparable to the profit and loss statement of the business concern. Sometimes a simple statement showing the *income and expenses* for the period reveals a better comparison of ordinary recurring income with its current operating expenses or costs. No extraneous income is included nor do the unusual non-recurring expenses or capital outlays enter. This type of statement is needed to show the true "balanced" budget.

Like commercial accounting, the operating statements are becoming more and more important. Due to the difficulty of securing additional income and to increasing costs, it becomes quite a problem for many cities to live within their income or in other words "to balance their budgets." Other statements showing cost analyses of services, maintenance, upkeep and the like are very necessary and valuable.

CONCLUSION

In conclusion, I wish to say that the new developments in the field of municipal accounting are mostly concerned with simplification of the accounting for funds; notwithstanding, there is considerable lack of uniformity in classifying funds. Attempting to over-simplify the book work of accounting for funds may have caused part of the confusion, but in this, the final objective—complete and comprehensive statements of funds and their operations—has been lost in many instances. More and more attention should be given the operating statements of the expendable funds. These, like their counterparts in commercial accounting, are dynamic and changing. They will never be too simple, but they should be understood reasonably well by the taxpayer, and it becomes necessary that they be written in non-technical language as far as that is possible.

ACCOUNTING RESEARCH

JOHN A. WHITE
Director of Research

THE first of four stated purposes of the American Accounting Association is to promote research in accounting. Although much has been done to further this objective, a great deal more must be done if the Association is to be counted among the leading contributors to effective research. Currently, research is being carried on under the auspices of the Association by Ralph C. Jones and his associates, who are working on the Price Level Project; by the Committee on Concepts and Standards in its continuing search for effective statements of concepts and standards in the area of financial accounting; by the Committee on Cost Accounting Concepts and Standards; and by the several task committees on education.

This research work has been, and will continue to be, of great value to the profession. Yet it has involved only a relatively few workers. The tremendous research potential represented by the thousands of college and university teachers and graduate students of accounting needs to be tapped if the research program is to be enlarged to keep up with the growing needs for the application of the scientific method to the problems facing accountancy. Of course, some considerable research is being carried on by individual members of the Association and by graduate students. The enlargement of this facet of accounting research is one of the projects which presently concerns me as director of research for the Association.

ORIGIN OF A RESEARCH PROBLEM

A research problem arises out of a felt need; it develops from a situation (usually in practice) in which there is a recognition that something is wrong, that conventional methods are not quite satisfactory, or that results obtained in the application of customary methods and techniques do not appear to be reliable. The discerning individual recognizes that unsolved difficulties exist. A research problem is thus discovered.

The next step is to define or to delineate the problem. This is especially important if the problem is to be shared with others, or if it is to be turned over to other researchers. Many college students approach the task of thesis writing without proper orientation. A topic is chosen and the student begins "writing on" his topic, without having carefully framed his problem. Such a thesis more often than not, turns out to be a "library" thesis or a rehash of material perhaps better treated in the original source.

RESEARCH TOPICS PROJECT

It was decided at the beginning of the year that I, as director of research, should collect properly framed research topics from available sources and publish these in the REVIEW. Help on the project has been solicited from directors of research of other accounting organizations. Industry, regulatory commissions, other governmental units, and public accounting firms can furnish an inexhaustible supply of research problems. I hope to collect and make available some of these research needs. It is believed that college faculties and their graduate students, when confronted with practical research problems in accounting, will respond with increased output and will make even greater contributions to accounting knowledge.

By "framing" the topic, it is meant that an attempt is made to expound the prob-

lem. It is usually very difficult to set forth the problem for investigation in a short topic statement. Some statement of the problem situation and of the difficulties or needs inherent therein is essential in transmitting the research problem to the researcher. Since it is expected that most of the research topics will come from practice, it is important that the real nature of the problem be made clear at the outset. This cannot be done by reduction of the problem to headline or title form. It is important to divulge all the information about the problem which the author of its statement possesses. Perhaps preliminary research should be in the hands of the new researcher, so that he need not start over, but by taking advantage of his predecessor's findings, may proceed to still other phases of the problem and thus add his contributions to the solution sought.

By publishing research topics, it is likely that some of these will be chosen by two or more individuals and that duplication of effort may result. I feel that this is not undesirable. Quite to the contrary, multilateral research would almost certainly insure greater results. In medicine and in the natural sciences, it is commonplace for two or more researchers to work independently and contemporaneously on the same problem. Different approaches and different viewpoints, working from different hypotheses, make it more likely that two or more researchers will come up with an acceptable solution than if the problem had been reserved for one. And often each researcher makes a valuable contribution towards the solution.

Listed following is the first group of framed research topics which have been received from various sources. It is hoped that these will attract the interest of college teachers and graduate students particularly. Suggestions and criticisms of this Research Topics Projects are solicited.

RESEARCH PROBLEMS IN ACCOUNTING

I. THEORY OF ACCOUNTING

A. *Development of Accounting Principles*

Problem: To make a comparative and analytical study of statements on accounting principles, concepts, and standards, and their attendant reviews, for the purpose of ascertaining:

1. Areas of agreement.
2. Areas of disagreement.
3. Trends in the formulation of principles, concepts, and standards.
4. Implications of trends to accounting theory.
5. A proposed statement of accounting principles.

Approach: Data would be gathered primarily through library research supplemented by questionnaires submitted to persons who have worked or written in the field of accounting principles.

Suggested Phases of the Study:

1. An analysis and comparison of:
   a. "A Statement of Accounting Principles," Sanders, Hatfield, and Moore.
   b. Statements prepared by the Committee on Accounting Concepts and Standards, American Accounting Association.
   c. Statements prepared by the Committee on Cost Accounting Concepts, American Accounting Association.
   d. Statements prepared by the Committee on Accounting Procedure, American Institute of Accountants.
   e. "An Introduction to Corporate Accounting Standards," Paton and Littleton.
   f. "Structure of Accounting Theory," A. C. Littleton.
   g. Others.

2. An analysis of the reaction of the accounting profession to such writings by:
   a. A review of articles dealing with the foregoing.
   b. Questionnaires relative to:
      (1) Recent statements on principles.
      (2) Current thinking on the problem of principles.
3. A review of other pertinent literature on the subject of principles.

(L. J. Benninger, University of Missouri.)

B. *The Concept of Full Disclosure in Current Accounting Practice*

Problem: To examine concrete instances of failure to make full disclosure, in order to derive a generalized statement as to the boundaries, in practice, of permissible withholding of data; comparison of the results obtained with pronouncements of professional and regulatory bodies on the subject.

Approach: Published reports of the Securities and Exchange Commission, court decisions, and published reports of other regulatory bodies would be consulted in order to obtain data on the concrete instances in which the problem of full disclosure was at issue.

Comments: What constitutes "full disclosure" cannot be determined unless we know for whom the data are intended, the types of decisions they may be called upon to make, and the manner in which the data might have a bearing on the decisions. To determine all of this is undoubtedly beyond the scope of any single project of one research man. Nevertheless, partial answers may be gleaned from indirect attacks upon the problem. The proposed project is one such indirect attack—we will try to deduce the answers to the basic questions raised above from the behavior of those who have in actual concrete cases made a determination that certain types of disclosure are incomplete, whereas other types are satisfactory. If successful, this type of historical, inductive study will supply the hypotheses on which to construct a systematic analysis of what *ought* to constitute full disclosure. (Maurice Moonitz, University of California, Berkeley.)

C. *"Fortunate Purchase" of Assets*

Problem: Determination of the method to be used in accounting for a "fortunate purchase" of assets. Example, plant and equipment may, for some reason, have been purchased at a bargain price, much below their fair value.

Approach: Data would be gathered from accounting literature; cases would be analyzed; inquiries should be made of professional societies, practicing accountants and others.

Problems to be investigated:

1. Amount at which assets should be recorded on the books of the acquiring company.
2. If assets are recorded on the books at an amount in excess of cost to the acquiring company, to what account should such excess be credited.
3. Determination of the amount of annual income.
4. In cases such as these, should the "cost concept" be abandoned.
5. Disclosure, required in the financial statements.
6. The accountant's certification.

D. *Study of the Problems Arising in Connection with Deferred Compensation Plans for Management*

Approach: The study should be made in order to determine the accounting to

be followed in connection with such plans. Stockholders' reports and prospectuses probably would show which companies had such plans. The companies, if requested to do so, would probably furnish copies of the plans for use in the study.

Problems to be investigated:

1. The accounting done by each company for its plan should be studied.
2. What accounts should be charged with the cost of such plans?
3. Should a liability appear in the financial statements in connection with the accounting for the plans?
4. Disclosure by footnote or otherwise of the provisions of the plans.
5. Certification of financial statements.

E. *Amortization of Type (b) Intangibles*

Problem: Should type (b) intangibles, as a matter of conservatism, be written off over a reasonable period.

Approach: Situations in which type (b) intangibles are carried in accounts should be studied. Particular attention should be given to type (b) intangibles in business combinations.

Problems to be investigated:

1. The consistency of the theories relating to (a) pooling of interests, and (b) purchase in the situations analyzed.
2. Possible expansion of merger theories to eliminate the necessity for setting up type (b) intangibles in acquisitions for stock in appropriate situations, such as when it would appear inappropriate to make an income charge for amortization.

II. REPORTS AND STATEMENTS

A. *Accounting for Sales Deductions*

Problem: The limited evidence available indicates that practice varies rather widely in the classifications of various items as deductions from gross sales, as selling expenses, as administrative expenses, as direct charges to cost of goods sold, as manufacturing cost, or as non-operating expense. For example:

1. Survey of several companies shows cash discounts variously classified as a deduction from gross sales, as a selling expense, and as a financial expense.
2. Similarly, state and city sales taxes are classified as a sales deduction, administrative expense, and as other deductions from income.
3. Sales commissions are treated as sales deductions by some companies and as selling expenses by other companies.
4. Warehousing of finished goods, outbound transportation, and insurance on shipments of finished goods are sometimes treated differently within the same company with the result that portions of these expenses appear in different sections of the company's income statement.

These variations in practice affect the allocation of expenses where gross or net sales serve as a basis for allocation; they affect expense ratios based on gross or net sales; they affect the base to which a mark-up is applied where desired selling prices are computed in this manner; and they affect net income when a portion of the expense incurred during a period is included in inventory. When portions of a single type of expense (e.g., warehousing or transportation) are classified differently, the entire amount of this expense does not appear in any one place in the company's financial statement. It seems reasonable to expect that the classification followed in a given company influences managerial decisions in

matters such as expense control, pricing, and planning sales methods and activities giving rise to the deductions or expenses in question.

Approach: A study in this area might have the following objectives:

1. To develop factual information as to the variety of methods in current practice.
2. To determine the reasons which have led individual companies to adopt each of these practices.
3. To evaluate the various practices in terms of how well they serve the several purposes for which accounting data are wanted.

The study could shed light on an aspect of accounting practice concerning which there is little information available in existing literature. Material would be drawn principally from current company practice. (Walter B. McFarland, National Association of Cost Accountants.)

III. PUBLIC ACCOUNTING

A. *Comparison of Accountancy with Other Professions in the United States*

Problem: To determine similarities and differences between accountancy and other recognized professions in the United States.

Approach: Data would be gathered in the library and by inquiries addressed to professional societies, regulatory bodies, and practitioners in the respective fields examined.

The following specific phases of the problem would be investigated:

1. Prerequisites for admission to practice and admission procedures (this may also include accrediting of colleges)
2. Regulation by governmental bodies
3. Ethics and discipline
4. Professional society structure at national and local levels
5. Usual legal form of each practicing entity
6. Statistics on size of firms, geographic scope of operations, etc.

It is suggested that the following professions be considered as a starting point in making the comparisons: architecture, engineering, law, management consulting, and medicine. Possibly this list could be augmented or deletions could be made. (C. T. Zlatkovich, University of Texas.)

B. *The Accounting Profession in Foreign Countries*

Problem: Study to determine the following with respect to accountants in foreign countries:

1. Legal protection of the profession, if any.
2. Requirements for entering the profession, i.e., for becoming certified or the equivalent thereof.
   a. education
   b. age
   c. nationality
   d. examinations
   f. experience
3. Accounting bodies, if any.
   a. codes of ethics, if any
   b. disciplinary procedure, if any
4. Standards, practices, procedures and generally accepted accounting principles followed.
5. Evaluation of work done by local accountants, by comparison with work done in countries whose standards, etc., are known.

Approach: Gather data from current accounting literature; correspond or interview partners of U. S. firms which have some international business; correspond with accounting societies, etc., in foreign countries.

IV. INDUSTRIAL ACCOUNTING

A. *Control of Manufacturing Scrap**

General

Every business operation, regardless of its size or nature, is faced with a problem of the handling and disposition of scrap of some variety. This may vary from disposing of office waste paper to accounting and disposing of large quantities of such scrap as turnings and stampings in a metal working plant.

As is natural, more attention and control exists as the value of scrap increases and when the production of scrap is a natural part of the manufacturing process. At best, however, there is often a tendency to concentrate accounting and control on the finished products and to give comparatively little attention to the problems and the values in the scrap operation.

In this situation, there is an excellent opportunity for exercise of the responsibility of the internal auditor as an appraiser of the internal control structure and as a protector of the interests of his organization.

The Problem

To study and appraise the control of scrap in a manufacturing operation.

Companies to Study

The companies selected for study should be those in which appreciable values in scrap are produced in the course of manufacturing operations.

Examples meeting this requirement would be:

A metal working plant
A plastic molding plant
An appliance manufacturer (here the treatment of rejected materials and assemblies might form a separate study)

Details To Be Studied

The problem has four natural divisions:

Acquisition
Storage
Disposition
Cost of Control

Acquisition

When scrap first makes its appearance, the problem begins. To take a metal stamping operation as an example, some of the questions would be:

Is scrap quantity related to good stampings produced, through standards or some similar comparative test?

Is this comparison carried down to separate machines?

Who reviews reports of production and scrap?

Is action taken regarding them?

Would excessive scrap because of some defect in original metal sheets be noted in the normal course?

What are provisions for holding and collecting scrap and delivery to storage?

If scrap goes back for reworking, does the quantity reworked show up in the records?

Where is quantity to be accounted for first determined?

Storage

Storage (in which is included the classification of scrap) can have a decided effect upon the final amount realized when the scrap is sold. Here some of the questions would be:

Is scrap separated by standard

* This is one of a group of ten study statements which have been published by the Institute of Internal Auditors under the title "Study Statements in Internal Auditing and Control." Those interested may obtain copies of the booklet upon request to the Institute of Internal Auditors, 120 Wall Street, New York.

grades so that it may be marketed to best advantage? (For example, heavy steel scrap has more value than fenders from dismantled autos.)

Is scrap stored to protect it from deterioration?

Is some type of quantity control maintained?

How is cost of storage and handling determined?

Disposition

The pay-off comes with disposition, and appraisal of controls takes several directions.

Who determines weights and grades disposed of and paid for, and how are these related to original quantities produced?

How is price determined, by bid, by contract or some other means?

Is consideration given to grading, baling or any other means to give maximum return?

Who handles sale and disposition and how does internal control tie in with controls over acquisition and storage?

Cost of Control

The fact that a question is given above is no indication that a particular control feature is necessary or justified. It is entirely possible to have overelaborate controls or methods of handling that will not pay off from a company standpoint. Cost of operation must be weighed against the values involved and the possibility of loss.

The Report

The final report might well follow the natural sequence which has been outlined. Stress should be given to weaknesses and possible sources of loss in relation to cost of operation and final values in terms of profit to the business. (Research Committee, Institute of Internal Auditors.)

B. *The Theory and Techniques of Service Department Costing*

Problem: To study methods and techniques used in costing and controlling service department costs in industrial situations. The analysis should emphasize comparison of methods and seek justification for their use in sound business organizations, practices, and in accounting theory. A selected number of concerns in the same industry or in related industries should be chosen for the study. Service functions in both manufacturing and non-manufacturing activities should be covered.

Approach: Data would be gathered through research within a given industry by means of written inquiries and actual field studies supplemented by library research.

Suggested Phases of the Study:

1. Product Costing
   a. Presentation and analysis of:
      (1) Selecting bases of allocation
      (2) Standard costs
      (3) Single and dual methods
      (4) Separation of fixed and variable costs in costing
      (5) Others
2. Control of Service Department Costs
   a. Within the department
      (1) Standard costs
      (2) Budgetary control
         (a) Flexible Budgets
         (b) Others
      (3) Output ratios
      (4) Historical costs
      (5) Others
   b. By Using Departments
      (1) Actual cost ratios
      (2) Standard cost rates

(a) at actual usage
(3) Dual rates
(4) Others

(Glenn A. Welsch, University of Texas.)

V. TAXATION

A. *Accounting for "Tax-Free Spin-Off" Situations*

Problem: The accounting to be followed in situations similar to the one described below:

Company A owned real estate in which certain of its business offices were located. These assets were acquired from an affiliate a number of years ago. Cost to Company A, approximately \$1,600,000. Cost in 1930, to affiliate, approximately \$2,000,000.

Company A decided to dispose of its real estate holdings and for that purpose organized a new company. The real estate was appraised by independent appraisers at \$5,000,000. Board of Directors of New Company decided that the real estate should be set up on books at \$4,000,000. Par value (\$10) shares of New Company in the amount of \$4,000,000 were issued to Company A, which in turn, distributed such shares to its own stockholders.

Company A and New Company immediately entered into a long term lease, approximately 30 years, pursuant to which Company A agreed to pay a yearly rental of approximately \$250,000 per year.

Boards of Directors, management and stockholders of the two companies were substantially similar.

Approach: Study tax law, re tax-free "spin-offs." Gather, study and analyze cases dealing with such "spin-offs."

Problems to be investigated:

1. Carrying value of properties on books of New Company.
2. Depreciation charges on books of New Company.
3. Consider effect of lack of arm's length bargaining.
4. Consider effect of consent decree in situations of this kind.
5. Do the principles set out in Chapter 7 C, Business Combinations, of Accounting Research Bulletin No. 43 apply to these situations?

The moving picture company cases, i.e., separation of production facilities and theatre facilities, probably should be considered here.

VI. ACCOUNTING AND REGULATION

A. *Accounting Control in Regulating Public Utilities*

Problem: To determine what accounting factors and procedures are generally used in the development of accounting data useful as a basis for top-level decision making in the regulation of public utilities; and to evaluate current accounting practices in such regulatory proceedings.

Approach: Study history of industry regulation; decisions of state regulatory bodies; court decisions; accounting and statistical sections of state commissions; annual reports of state commissions; Proceedings of National Association of Railroad and Utilities Commissioners Conventions; Interstate Commerce Commission decisions; and other related materials.

Problems to be investigated:

The rate base; depreciation; rate of return; cost of capital concept; issuance of securities; allocation of revenue and expense; adjustments to current price levels; ratios and percentages; audit verification of applications (for rate changes, etc.).

B. *The Use of Accounting as an Instrument of Public Policy*

Our conventional accounting "principles" have developed from a view of accounting either as an instrument of (1) the owners to determine profitability or unprofitability of an investment or of (2) management to control the activities for which it is responsible. A third force is becoming of increasing importance, namely, regulatory authority and its view that the primary function of accounting is to assist the process of regulation. There is need for a whole series of specific, objective studies on various regulatory bodies to determine the extent to which accounting is already consciously being used as an instrument of public policy. Sidney Davidson, now at Johns Hopkins, made such a study, as a doctoral dissertation, of the Federal Power Commission and "original cost"; Charles Lamden, now at San Diego State, made a similar study of the Securities and Exchange Commission. Dr. Scott has an article in the July, 1947, issue of ACCOUNTING REVIEW on the use of accounting in public utility regulation generally. There is a wealth of research data in the experiences of the war-time agencies for price-control, renegotiation, recapture, excess-profits tax relief, and the like.

(Maurice Moonitz, University of California, Berkeley.)

C. *Certification by foreign accountants of financial statements of foreign corporations to be used in connection with the sale of securities to investors in the United States and for the purpose of listing these securities on national securities exchanges in this country*

Problem: Is it reasonable to require foreign accountants to perform audits in accordance with generally accepted auditing standards, practices and procedures known to and followed by the accounting profession in the United States?

Approach: Study auditing standards, practices and procedures followed by the profession in foreign countries. Familiarity with generally accepted auditing standards, practices and procedures in the United States is essential. Study the Securities Act of 1933 and the Securities Exchange Act of 1934.

Points to be considered in the study:

1. Comparison of U. S. and foreign auditing standards, practices and procedures.
2. Liability of accountants, domestic and foreign, to investors.
3. Methods of enforcing liability against foreign accountants.
4. If it is not reasonable to require foreign accountants to meet the standards of the profession in the United States, what minimum standards should be required?
5. If the profession in a given foreign country is weak and standards, practices and procedures are not comparable to U. S. standards, what should be accepted?

(See p. 483, April, 1954, Journal of Accountancy.)

VII. EDUCATION

A. *A study of the implications of electronic computer processes in the education and training of persons proposing to enter accounting careers*

Problem: Developments in the area of electronic processes have proceeded rapidly in the past few years. Little attention has been given, however, to the impact of the developments on the educational background of people who may

be users of these processes in their careers. There is some evidence that electronic processes will do for clerical work in modern and large sized concerns what the industrial revolution did for factory employees. Even if this prediction should not prove to be entirely true, it seems obvious that electronic processes will very soon be making a real impact on the staffing and organization of accounting offices. This study would develop thoroughly how this new and promising process can be fitted into the framework of the accounting curriculum of collegiate schools of business administration.

The Approach:

The procedure for conducting the study would involve:

1. Visits with organizations now using electronic processes and those contemplating the early use of such processes.
2. The assembly of a bibliography of published materials relating to electronic processes.
3. An extensive study of the specific places in the content of the several accounting courses in which electronic processes and their application could be fitted.
4. The preparation of a syllabus for the conduct of an intra-departmental training course.

(S. Paul Garner, University of Alabama.)

Some topics for research have been submitted without elaboration of the problem. Since these seem to have definite research value, they are listed following.

1. "Evaluation of the Current Status of Accounting Education"—presentation of historical backgrounds, determination and evaluation of present status, analysis of operating influences, suggestions for improvement.
2. "Analysis and Evaluation of Decisions Made by the Securities and Exchange Commission on Matters Involving Defects in Accounting Procedure"—brief summary of cases, evaluation and influence of decisions.
3. "Should Cost Accounting Be on an Economic Cost Rather than Historical Cost Basis?"—purposes of cost accounting, relevancy of desired data, possible separation of cost accounting and financial accounting.
4. "Factors Contributing to the Success of Outstandingly Successful Accountants"—extent to which education, experience, and characteristics of individuals contribute thereto.
5. "Influence of Factors Other than Potential Profit in the making of Managerial Decisions"—study of managerial decisions made in selected firms.
6. "Influence of the Accounting Treatment of Maintenance and Repairs upon the Measurement of Income"—study and evaluation of the treatment accorded these items in selected firms.
7. "Relation between Depreciation and Maintenance Policies and Replacement"—study of the experiences of selected firms.
8. "Influence of the Prosperity of the Firm upon Maintenance, Replacement and Service Policies"—study of selected firms to determine extent to which these are deliberately varied over the boom-depression experience.
9. "The History and Status of Depreciation Accounting for Public Utilities."
10. "The Role of Accounting in Labor-Management Relations.

PROFESSIONAL ACCOUNTANTS LIBRARY

School of Business Administration
University of North Carolina

THE GRADUATE CLASS in Accounting Systems included in its accounting exhibit for the dedication of the new buildings on May 25, 1953, a Professional Accountants Library of approximately 140 books and pamphlets, all recent editions, in accounting and related fields. This Library was on display at the annual convention of the American Accounting Association last September.

The books were selected by Alton G. Sadler, Associate Professor, University of North Carolina, and were arranged for publication by Kenneth F. Easter, an M.B.A. Service Scholar.

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THE TEACHERS' CLINIC

FRANK S. KAULBACK, JR.

EDITOR'S NOTE: Many of the experienced teachers, as well as some of the new ones have developed devices and techniques for the presentation of certain of the knotty aspects of accounting, and it is felt that such suggestions might well be made available to the other members of the teaching profession through *The Teachers' Clinic.* Accordingly, contributions are hereby invited. Please address all correspondence to Frank S. Kaulback, Jr., School of Commerce, University of Virginia, Charlottesville, Virginia.

THE TEACHING OF PROCESS COSTS

G. H. NEWLOVE
University of Texas

Students frequently have difficulty with process costs because they are not familiar with techniques which enable them to analyze the data used in the evaluation of the inventories. Students should be required to work all process cost problems by preparing the following schedules in numerical order:

1. Quantity Report
2. Equivalent Production Schedules
3. Inventory Valuation Schedules

If these schedules are prepared for easy problems, the techniques so learned can be shown to be satisfactory for the solving of advanced problems. While most of the clerical work in solving process cost problems is involved in preparing the inventory valuation schedules, students usually make their serious errors in the quantity report and equivalent production schedules.

In order to insure a complete analysis of a process cost problem, the quantity report should have a column for each storeroom, stockroom, or producing department arranged in the order each appears in the manufacturing operations. The units for each column are the transferred-out units of the respective producing department or warehouse; this point is important because the incoming unit of a producing department might be a solid while the outgoing unit of the same department might be either a liquid, gas, or another solid with a different unit of measurement.

ILLUSTRATIVE PROBLEM

A mill had the following inventories:

	Initial		*Final*
Raw material	400,000 lbs.	$38,800	500,000 lbs.
Goods in process (half converted)	100,000 lbs.	$15,300*	150,000 lbs.
Finished products	100,000 lbs.	$19,000	110,000 lbs.

* Of which $4,800 was conversion costs.

Raw material purchased, 1,600,000 pounds, cost $163,200. Issued material was placed in production at start of operation. The conversion costs, exclusive of loss caused by spoilage, totaled $120,424. The sales of finished product amounted to 1,240,000 pounds. The receipts from salvage of spoiled product totaled $8,000.

If spoilage occurred at start of operations (Case A), at end of operations (Case B), and uniformly during operations (Case C), prepare:

a. Quantity report
b. Equivalent production schedules
c. Inventory valuation schedules under the following pricing bases: (1) average cost, (2) F.I.F.O., and (3) L.I.F.O. (all transfers priced at end of cost period).

In order to avoid use of columns for cents, carry the unit cost to the closest dollar per thousand pounds.

ANNOTATED SOLUTION

(a) *Quantity Report*

The quantity report, which is not affected by the choice of method for accounting for spoilage, is especially valuable in starting the solution of C.P.A. problems, which frequently do not give the data in the order needed for the purpose of forcing the candidates to compute the missing statistics. For instance, the pounds of raw material purchased and of goods in process spoiled in manufacturing were not furnished in the illustrative problem.

QUANTITY REPORT

	Raw Material	*Goods in Process*	*Finished Product*
Initial inventory......	400,000*	100,000*	100,000*
New units...	1,600,000*	1,500,000	1,250,000
Total.......	2,000,000	1,600,000	1,350,000
Spoiled......	—	200,000	—
Net.........	2,000,000	1,400,000	1,350,000
Final inventory......	500,000*	150,000*	110,000*
Transferred out.......	1,500,000	1,250,000	1,240,000

* Denotes figures given; others must be computed.

(b) *Equivalent Production Schedules*

Case A. When spoilage occurs at the start of the operation, the loss on spoilage should be absorbed by the good units completed and transferred and the good units in the final inventory on the basis of their equivalent production figures computed on a good units basis. The number of units of equivalent production on a good units basis is the good units transferred out plus the good units in the final inventory (weighted by degree of completion) minus the good units in the initial inventory (weighted by degree of completion).

Case B. When spoilage occurs at the end of the operation, the loss on spoilage should be absorbed by the good units completed. This result may be obtained easily by using the equivalent production figures computed on a good and spoiled unit basis. The equivalent production on a good and spoiled units basis is the good units transferred out plus the spoiled units (weighted by unity) plus the good units in the final inventory (weighted by degree of completion) minus the good units in the initial inventory (weighted by degree of completion). It is memory aiding to notice that the equivalent production (good units basis) used in Case A is converted into the equivalent production (good and spoiled units basis) used in Case B by merely adding the number of units spoiled in the operation (weighted by unity).

Case C. When spoilage occurs gradually during the operation and spoiled units are not processed further after becoming spoiled, the loss on spoilage may be treated as a burden cost and allocated to the good units completed and transferred and to the good units in the final inventory on the basis of the equivalent production figures (good units basis) for burden costs, or for conversion costs, if labor and burden costs are combined. This result is obtained by using the equivalent production on a good and spoiled units basis for all non-burden costs and the equivalent production on a good units basis for burden costs.

(c) *Inventory Valuation Schedules*

The unit figures in the inventory valuation schedules are actual units for raw material and finished product and equivalent production units for in-process inventories. The figures on the bottom lines of the equivalent production schedules are always the "New units" figures used in the inventory valuation schedules for goods in process. In order to reduce the amount of memorizing necessary, the titles to the lines have been made as identical as possible for the various kinds of inventories and for the three methods of accounting for

EQUIVALENT PRODUCTION SCHEDULES

	Material Costs		*Conversion Costs*	
	Good units basis (M)	*Good and spoiled units basis* (M)	*Good units basis* (M)	*Good and spoiled units basis* (M)
Transferred out (good)	1,250	1,250	1,250	1,250
Spoiled units	—	200	—	200
Final inventory (weighted)	150[a]	150[a]	75[b]	75[b]
Total	1,400	1,600	1,325	1,525
Initial inventory (weighted)	100[a]	100[a]	50[b]	50[b]
E. P. units	1,300	1,500	1,275	1,475

[a] Weighted by unity as entered production at start of operations.
[b] Weighted by 50% as half converted.

spoilage, the order of the lines in the inventory valuation schedules is exactly the reverse of the order in the equivalent production schedules. Under the average cost basis, the unit costs are computed on the "Total costs" line and applied on the "Final inventory-total" line. Under the F.I.F.O. basis, as much as possible of the final inventory is evaluated at the unit cost computed on the "New units" line; any excess of the final inventory over the units produced in the current period (this would not happen often) is priced at the unit cost computed on the "Initial inventory" line. Under the L.I.F.O. basis, as much as possible of the final inventory is evaluated at the unit cost computed on the "Initial inventory" line; any excess of the final inventory over the initial inventory is priced at the unit cost computed on the "New units" line.

Case A. When the loss on spoiled units occurs at the start of the operation, the receipts from salvage are deducted from the cost of the processed materials. That is, the figures on the "New units" line for the Material in Process is the cost of units of raw material issued during the cost period minus the amount received from the salvage of the spoiled units. If there are no spoiled units, the schedules for Case A should be used without any change in form. The in-process accounts use equivalent production units computed on a good units basis.

Case B. When the loss on spoiled units occurs at the end of the operation, the in-process inventories are valued as though there are no spoiled units, the receipts from salvage being deducted from the material costs of the good completed units. The in-process accounts use equivalent production units computed on a good and spoiled basis. The schedules for raw material are identical with those in Case A.

Case C. When the loss on spoiled units occurs gradually during the operation and spoiled units are taken from the process as they are spoiled, the non-burden in-process inventories are valued as though there were no spoiled units (as was done in Case B), and the burden in process inventory takes its share of the spoiled units loss along with the completed units (as was done in Case A). The receipts from salvage are deducted from the burden costs of the current cost period because the gross non-burden cost of the spoiled units is treated as current burden cost. The non-burden in-process accounts use equivalent production units computed on a good and spoiled units basis and the burden in process account uses equivalent production units computed on a good units basis. The raw material schedules are identical with those in Case A.

Case A

INVENTORY VALUATION SCHEDULES

(When spoiled units loss is allocated over in-process and completed units)

	Average Cost			*F.I.F.O. Basis*			*L.I.F.O. Basis*		
	Units (M)	*Rate per M*	*Total Cost*	*Units (M)*	*Rate per M*	*Total Cost*	*Units (M)*	*Rate per M*	*Total Cost*
RAW MATERIAL									
(Same for all Cases)									
New units	1,600		$163,200	1,600	$102	$163,200	1,600	$102	$163,200
Initial inventory	400		38,800	400		38,800	400	97	38,800
Total Cost	2,000	$101	$202,000	2,000		$202,000	2,000		$202,000
Final inventory:									
Out of initial inventory	—		—	—		—	400	97	$ 38,800
Out of new units	—		—	500	102	$ 51,000	100	102	10,200
Total	500	101	50,500	500		$ 51,000	500		$ 49,000
Transferred out	1,500		$151,500	1,500		$151,000	1,500		$153,000
MATERIAL IN PROCESS									
New units	1,300		$143,500[a]	1,300	$110	$143,000[a]	1,300	$112	$145,000[a]
Initial inventory	100		10,500	100		10,500	100	105	10,500
Total cost	1,400	$110	$154,000	1,400		$153,500	1,400		$155,500
Final inventory:									
Out of initial inventory	—		—	—		—	100	105	$ 10,500
Out of new units	—		—	150	110	$ 16,500	50	112	5,600
Total	150	110	16,500	150		$ 16,500	150		$ 16,100
Transferred out	1,250		$137,500	1,250		$137,000	1,250		$139,400

[a] Net after receipts from salvage.

	Average Cost			*F.I.F.O. Basis*			*L.I.F.O. Basis*		
	Units (M)	*Rate per M*	*Total Cost*	*Units (M)*	*Rate per M*	*Total Cost*	*Units (M)*	*Rate per M*	*Total Cost*
CONVERSION COSTS IN PROCESS									
New units	1,275		$120,424	1,275	$ 94	$120,424	1,275	$ 94	$120,424
Initial inventory	50		4,800	50		4,800	50	96	4,800
Total cost	1,325	$ 95	$125,224	1,325		$125,224	1,325		$125,224
Final inventory:									
Out of initial inventory	—		—	—		—	50	96	$ 4,800
Out of new units	—		—	75	94	$ 7,050	25	94	2,350
Total	75	95	7,125	75		$ 7,050	75		$ 7,150
Transferred out	1,250		$118,099	1,250		$118,174	1,250		$118,074
FINISHED PRODUCT									
New units	1,250		$225,599	1,250	$204	$255,174	1,250	$206	$257,474
Initial inventory	100		19,000	100		19,000	100	190	19,000
Total Cost	1,350	$203	$274,599	1,350		274,174	1,350		$276,474
Final inventory:									
Out of initial inventory	—		—	—		—	100	190	$ 19,000
Out of new units	—		—	110	204	$ 22,440	10	206	2,060
Total	110	203	22,330	110		$ 22,440	110		$ 21,060
Transferred out	1,240		$252,269	1,240		$251,734	1,240		$255,414

Case B

INVENTORY VALUATION SCHEDULES

(When spoiled units loss is charged only to good completed units)

	Average Cost			F.I.F.O. Basis			L.I.F.O. Basis		
	Units (M)	*Rate per M*	*Total Cost*	*Units (M)*	*Rate per M*	*Total Cost*	*Units (M)*	*Rate per M*	*Total Cost*
MATERIAL IN PROCESS									
New (good & spoiled)	1,500		$151,500	1,500	$101	$151,000	1,500	$102	$153,000
Initial inventory	100		10,500	100		10,500	100	105	10,500
Total costs	1,600	$101	$162,000	1,600		$161,500	1,600		$153,500
Final inventory:									
Out of initial inventory	—		—	—		—	100	105	$ 10,500
Out of new units	—		—	150	101	$ 15,150	50	102	5,100
Total	150	101	15,150	150		$ 15,150	150		$ 15,600
Transferred out:									
Gross	1,450		$146,850	1,450		$146,350	1,450		$147,900
Spoiled	200		8,000*	200		8,000*	200		8,000
Good	1,250		$138,850	1,250		$138,350	1,250		$139,900

* Deducted.

	Average Cost			F.I.F.O. Basis			L.I.F.O. Basis		
CONVERSION COSTS IN PROCESS									
New (good and spoiled)	1,475		$120,424	1,475	$ 82	$120,424	1,475	$ 82	$120,424
Initial inventory	50		4,800	50		4,800	50	96	4,800
Total costs	1,525	$ 82	$125,224	1,525		$125,224	1,525		$125,224
Final inventory:									
Out of initial inventory	—		—	—		—	50	96	$ 4,800
Out of new units	—		—	75	82	$ 6,150	25	82	2,050
Total	75	82	6,150	75		$ 6,150	75		$ 6,850
Transferred out:									
Gross	1,450		$119,074	1,450		$119,074	1,450		$118,374
Spoiled	200		—	200		—	200		—
Good	1,250		$119,074	1,250		$119,074	1,250		$118,374
FINISHED PRODUCT									
New units	1,250		$257,924	1,250	$206	$257,424	1,250	$207	$258,274
Initial inventory	100		19,000	100		19,000	100	190	19,000
Total costs	1,350	$205	$276,924	1,350		$276,424	1,350		$277,274
Final inventory:									
Out of initial inventory	—		—	—		—	100	190	$ 19,000
Out of new units	—		—	110	206	$ 22,660	10	207	2,070
Total	110	205	22,550	110		$ 22,660	110		$ 21,070
Transferred out	1,240		$254,374	1,240		$253,764	1,240		$256,204

POINTS NOT COVERED BY ILLUSTRATIVE PROBLEM

While the Illustrative Problem calls for nine different solutions (because of the three methods of accounting for spoiled units and the three different pricing bases), it does not cover all the points found in process costs. Most of the omitted points are mentioned in this section together with their effect on the quantity report, equivalent production schedules, and inventory valuation schedules. This will dem-

Case C

INVENTORY VALUATION SCHEDULES

(When spoiled units loss is treated as current cost period's burden)

	Average Cost			*F.I.F.O. Basis*			*L.I.F.O. Basis*		
	Units (M)	*Rate per M*	*Total Cost*	*Units (M)*	*Rate per M*	*Total Cost*	*Units (M)*	*Rate per M*	*Total Cost*
MATERIAL IN PROCESS									
New (good and spoiled)	1,500		$151,500	1,500	$101	$151,000	1,500	$102	$153,000
Initial inventory	100		10,500	100		10,500	100	105	10,500
Total costs	1,600	$101	$162,000	1,600		$161,500	1,600		$163,500
Final inventory:									
Out of initial inventory	—		—	—		—	100	$105	$ 10,500
Out of new units	—		—	150	101	$ 15,150	50	102	5,100
Total	150	101	$ 15,150	150		$ 15,150	150		$ 15,600
Net	1,450	101	$146,850	1,450	101	$146,350	1,450	102	$147,900
Spoiled to burden	200	101[a]	20,200	200	101[a]	20,200	200	102[a]	20,400
Transferred (good)	1,250		$126,650	1,250		$126,150	1,250		$127,500

[a] Since it is usually impractical to distinguish between the relative ages of the units spoiled and the units transferred, they are valued at their average unit costs.

	Average Cost			*F.I.F.O. Basis*			*L.I.F.O. Basis*		
	Units (M)	*Rate per M*	*Total Cost*	*Units (M)*	*Rate per M*	*Total Cost*	*Units (M)*	*Rate per M*	*Total Cost*
CONVERSION COSTS IN PROCESS									
Ordinary conversion costs	—		$120,424	—		$120,424	—		$120,424
Spoiled material costs	—		20,200	—		20,200	—		20,400
Receipts from salvage	—		8,000*	—		8,000*	—		8,000*
Total new costs	1,275		$132,624	1,275	$104	$132,624	1,275	$104	$132,824
Initial inventory	50		4,800	50		4,800	50	96	4,800
Total costs	1,324	$104	$137,424	1,325		$137,424	1,325		$137,624
Final inventory									
Out of initial inventory	—		—	—		—	50	96	$ 4,800
Out of new units	—		—	75	104	$ 7,800	25	104	2,600
Total	75	104	7,800	75		$ 7,800	75		$ 7,400
Transferred out	1,250		$129,624	1,250		$129,624	1,250		$130,224

* Deducted.

	Average Cost			*F.I.F.O. Basis*			*L.I.F.O. Basis*		
	Units (M)	*Rate per M*	*Total Cost*	*Units (M)*	*Rate per M*	*Total Cost*	*Units (M)*	*Rate per M*	*Total Cost*
FINISHED PRODUCT									
New units	1,250		$256,274	1,250	$205	$255,774	1,250	$206	$257,724
Initial inventory	100		19,000	100		19,000	100	190	19,000
Total costs	1,350	$204	$275,274	1,350		$274,774	1,350		$276,724
Final inventory:									
Out of initial inventory	—		—	—		—	100	190	$ 19,000
Out of new units	—		—	110	205	$ 22,550	10	206	2,060
Total	110	204	22,440	110		$ 22,550	110		$ 21,060
Transferred out	1,240		$252,834	1,240		$252,224	1,240		$255,664

onstrate that the use of the three tables has the added advantage of giving a framework with which the complications of process costs may be analyzed and studied.

More than one producing department. When departmental costs are pyramided as is the usual practice, each department must have a column in the quantity report, and each department, after the first, should have equivalent production sched-

ules for prior department costs, material (if new material is added), direct labor, and burden. It is not absolutely necessary to have an equivalent production schedule for prior department costs, but, as these costs are always 100 per cent complete, it is expedient to have the equivalent production schedule have separate columns for prior department costs, material, direct labor, and burden in the order listed herein. This timing makes it easier to weight the inventories by their respective degrees of completion.

More than one product. If there is more than one product, there must be a quantity report, equivalent production schedules, and inventory valuation schedules for each product.

By-products. Units of by-products are not shown in the main product's quantity report or equivalent production schedules. The by-product credit is deducted from the current period's material costs in the same manner that the receipts from salvage of spoiled units are deducted.

Increase in number of units of product caused by added material. If a department, other than the first, adds new material and thereby increases the number of units of product (e.g., when alcohol is added by the chemical industry as a preservative), the added units have practically the opposite effect as the lost units caused by spoilage. The three methods of accounting for added units of product reflect the effect of having the additional units appear (1) at the start of the operation, (2) at the end of the operation, and (3) gradually during the operation.

Inventory not all at same degree of completion. Units of varying degrees of completion may be combined in the same inventory, if weighted by the proper degrees of completion; for instance, 100 units one half completed and 60 units one third completed may be treated as 70 fully completed units. Care must be taken when departmental inventories contain unprocessed units received from the preceding department and fully processed units not yet transferred to the next department. The famous American Institute brick problem (November, 1920) had the kiln inventory include green, half-burned, and fully burned bricks. Since spoilage was discovered when the bricks were removed from the kiln, no spoilage loss was chargeable against the brick in the kiln. The published solutions secured this result by evaluating the inventories as though there had been no spoiled units. This technique is not usable if spoilage occurs at the start of Dept. No. 2 as then the spoilage loss should affect the valuation of both the in-process inventory and the units completed. Units received by Dept. No. 2 from Dept. No. 1 but not processed by Dept. No. 2 may be treated as a component part inventory lying between the two departments, or they may be included in the Dept. No. 2 records if they are excluded from the equivalent production schedules and if the lines of the inventory valuation schedules for Dept. No. 2 are arranged as follows:

Unprocessed units received during current period from Dept. No. 1
Unprocessed units on hand at start of cost period
Total
Unprocessed units on hand at end of cost period
Units places in process
New production (this is "New units" line in schedules shown above)
Initial in-process inventory
Total
Final in-process inventory
Units completed
Completed units on hand at start of cost period
Total
Completed units on hand at end of cost period
Units transferred to next department

AN EXAMINATION DEVICE

Grading solutions to process cost problems is very difficult because students fre-

quently make errors in the quantity report or in the equivalent production schedules, which pyramid and make the inventory valuation schedules wrong. It is recommended that teachers giving examinations on process costs require the students to submit their quantity report and equivalent production schedules after say twenty minutes of the class period have passed. The teacher should have mimeographed or dittoed copies of the correct quantity report and equivalent production schedules prepared in advance, and should give the student a correct copy when the student submits his own answer. This procedure enables the teacher to grade each part of the solution separately. As the student will use the teacher's quantity report and equivalent production schedules, the pyramiding effect of errors in these tables on the inventory valuation schedules is avoided. If this procedure is not used, the teacher has the long and tedious job of tracing the effect of the student's errors in the quantity report and equivalent production schedules through the inventory valuation schedules in order to avoid deducting for the same error more than once.

THE BLACKBOARD VERSUS PROJECTED STILL PICTURES IN THE TEACHING OF ACCOUNTING—AN EXPERIMENT

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The blackboard is the best known and the most used of all visual aids in the teaching of accounting. It has a number of advantages for accounting instruction. It reflects the ability and the personality of the instructor to a greater extent than the majority of visual aids. It is flexible, i.e., additions to and changes in an illustration can be made easily. The blackboard is an inexpensive aid; the reproduction can be erased and the same surface used over and over again. It is readily available, being found in nearly every classroom that is used for accounting instruction. The actual recording of an entry can be shown on the blackboard, which is not possible with many visual aids such as projected still pictures.

In recent years projected still pictures in the form of filmstrips, lantern slides, opaque materials, and overhead transparencies have been found useful in the teaching of accounting.[1] Although relatively few instructors have made use of these aids in the accounting field, interest in such devices is growing. The problem facing these instructors is to determine to what extent the newer aids should supplement or even replace the blackboard.

Professor W. J. Fleig, of The Ohio State University, who had many years of experience with projected visual aids in accounting instruction listed the following as advantages of slides over the blackboard in the presentation of illustrative materials in the classroom:

1. Time is saved in placing the material before the students. Many types of illustrations using only a few minutes with slides would require the entire period for blackboard presentation.
2. Pictures, which may be presented on slides, cannot be placed on the blackboard.
3. The material to be presented must be developed and worked out in advance. While this is possible with blackboards, in many instances it may not be done.

[1] Andrew D. Braden, "Projected Still Pictures in the Teaching of Accounting," *Collegiate News and Views*, March, 1953, p. 21.

4. A better presentation of form and content. Blackboards have space limitations and illegible hand-writing is an additional handicap for some of us.
5. Slides can be used as many times as are needed. (We use them during office conferences as well as in the classroom.)
6. Uniformly instruction for multiple sections is facilitated.[2]

While Professor Fleig's commentary deals specifically with slides, it can be seen that the advantages which he cites apply to other still picture projection methods as well.

Many teachers using projected still pictures in accounting feel that the results of their instruction are better than with the use of the blackboard. In several instances where the author used slides to present accounting illustrations, all but a few students believed they learned more than would have been possible if the presentations had been made on the blackboard. In order to determine the relative values of the slides and the blackboard, the writer conducted an experiment in his accounting classes at the School of Business of Western Reserve University.

The author taught two small classes of the same intermediate accounting course in the fall semester of 1953. One of these classes was given instruction on a number of topics with the use of slides. The other section received instruction on the same topics with the use of the blackboard. The instructor spent the same amount of time in each class on all topics included in the experiment. The students were unaware of the fact they were taking part in an experiment. Subsequent test questions on these topics were interspersed with other test questions throughout the semester. Those who missed class instruction on a topic were not considered in the experiment. Thus, the number of students reported will vary.

The topic covered by Problem I was taught in both sections through the use of the blackboard. The percentage scores on this problem are presented below:

PROBLEM 1

Number of Students	*Section 1*	*Section 2*
1	100%	100%
2	100	100
3	100	100
4	100	100
5	50	50
6	50	50
7	50	50
8	0	50
9	0	0
10	0	

The average (mean) score of Section 1 was 55.0%, and of Section 2 was 66.7%. It may be noted that the average of Section 2 is considerably better due chiefly to the three zeros in Section 1.

The first topic comparing blackboard presentation to the use of slides concerned the retail method of inventory valuation. To illustrate the form and the detail of the five slides used on this topic, one image is reproduced below:

ILLUSTRATION 1

	Units	*Cost*	*Retail*
Beginning Inventory	1	10	15
Purchases (Cost 10 Each)	2	20	30
Total	3	30	45
Sales	1		15
Ending Inventory	2		30
Computation of Ending Inventory Value			
Retail			30
Ratio of Cost to Retail (30 to 45)			2/3
Inventory Value			20

There was not a great amount of detail on the slides used in regard to Problem 2, as is indicated by the sample. Section 1 re-

[2] W. J. Fleig, "Use of Slides in Accounting Instruction," THE ACCOUNTING REVIEW, July, 1948, p. 283.

ceived instruction through use of the slides. The percentage scores follow:

PROBLEM 2

Number of Students	*Section 1*	*Section 2*
1	100%	100%
2	100	100
3	100	100
4	100	100
5	100	100
6	93	100
7	63	100
8	45	100
9		81
10		81
11		45

The average (mean) score of Section 1 on Problem 2 was 87.6% compared to 91.5% for Section 2. The scores of Section 2 were again higher but to a lesser degree than in Problem 1.

Problem 3 concerned methods of costing inventory. Six slides were used in Section 1. The final slide on this topic is reproduced in (6) below.
Note that there is much greater detail on these slides than on those used in regard to Problem 2. The scores expressed in percentages are given below:

PROBLEM 3

Number of Students	*Section 1*	*Section 2*
1	100%	100%
2	100	90
3	100	80
4	80	80
5	80	60
6	60	60
7	60	60
8	40	60
9	40	0
10		0
11		0

(6) SOLD 2,200 UNITS:

PERPETUAL INVENTORIES

		In			*Out*			*Balance*		
	Date	*Quantity*	*Price*	*Amount*	*Quantity*	*Price*	*Amount*	*Quantity*	*Price*	*Amount*
First-in, first-out:	(1)	1,000	1.00	1,000.00				1,000	1.00	1,000.00
	(2)	1,000	1.20	1,200.00				1,000	1.00	2,200.00
								1,000	1.20	
	(3)				1,000	1.00	1,000.00	1,000	1.20	1,200.00
	(4)				500	1.20	600.00	500	1.20	600.00
	(5)	2,000	.90	1,800.00				500	1.20	2,400.00
								2,000	.90	
	(6)				500	1.20	2,130.00	300	.90	270.00
					1,700	.90				
Last-in, first-out:	(1)	1,000	1.00	1,000.00				1,000	1.00	1,000.00
	(2)	1,000	1.20	1,200.00				1,000	1.00	2,200.00
								1,000	1.20	
	(3)				1,000	1.20	1,200.00	1,000	1.00	1,000.00
	(4)				500	1.00	500.00	500	1.00	500.00
	(5)	2,000	.90	1,800.00				500	1.00	2,300.00
								2,000	.90	
	(6)				2,000	.90	2,000.00	300	1.00	300.00
					200	1.00				
Moving average:	(1)	1,000	1.00	1,000.00				1,000	1.00	1,000.00
	(2)	1,000	1.20	1,200.00				2,000	1.10	2,200.00
	(3)				1,000	1.10	1,100.00	1,000	1.10	1,100.00
	(4)				500	1.10	550.00	500	1.10	550.00
	(5)	2,000	.90	1,800.00				2,500	.94	2,350.00
	(6)				2,200	.94	2,068.00	300	.94	282.00

The average (mean) score of Section 1 was 73.3% which was more than 35% higher than the 53.6% average score of Section 2! This is especially significant because of the fact that Section 2 had made higher scores on the first two problems.

The final topic was in regard to statements of application of funds. Ten slides were used in the presentation of this material to Section 1. One of the ten slides of this series follows:

Problem 4

Number of Students	*Section 1*	*Section 2*
1	100%	100%
2	100	100
3	100	100
4	100	92
5	92	92
6	92	92
7	92	75
8	83	67
9	75	25
10	50	

WORKING PAPERS FOR STATEMENT OF APPLICATION OF FUNDS

Accounts	*December 31*		*Net Changes*		*Adjustments*		*Working Capital*		*Funds*	
	1950	*1949*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	*Increase*	*Decrease*	*Applied*	*Provided*
Cash	10,000	9,100	900				900			
Accounts receivable	20,000	21,100		1,100				1,100		
Inventory	20,000	18,000	2,000				2,000			
Fixed assets	24,000	20,000	4,000						4,000	
	74,000	68,200								
Reserves:										
For bad debts	1,000	800		200				200		
For depreciation	12,000	9,800		2,200	(3) 2,200					
Accounts payable	12,000	11,400		600				600		
Bonds payable	10,000	15,000	5,000						5,000	
Capital stock	30,000	24,000		6,000						6,000
Surplus	9,000	7,200		1,800	(1) 3,000	(2) 1,200				
	74,000	68,200	11,900	11,900						
Funds provided by profits:										
Net profit						(1) 3,000				5,200
Depreciation						(3) 2,200				
Funds applied to dividend					(2) 1,200				1,200	
					6,400	6,400	2,900	1,900	10,200	11,200
Increase in working capital								1,000	1,000	
							2,900	2,900	11,200	11,200

THE WORKING PAPERS ARE COMPLETED

Here again we have much detail on the slides. Again, Section 1 outscored Section 2 but not to the degree that they had on Problem 3. The percentage scores on Problem 4 were:

The average (mean) score of Section 1 was 88.4% compared to 82.6% for Section 2.

The following table is presented to summarize the scores on the four problems and to facilitate comparisons.

AVERAGE (MEAN) SCORES

Problem	*Section 1*	*Section 2*
1	55.0%	66.7%
2	87.6	91.5
3	73.3	53.6
4	88.4	82.6

It should be borne in mind that the number of students taking part in this experiment was limited. One of the sections was a daytime class and the other a night section. Many other factors may have had a bearing on the scores. The writer does not feel that a great number of definite conclusions are warranted. However, it appears that one important conclusion is indisputable, i.e., where the amount of detail regarding an accounting topic is great, presentation in the form of slides achieves better results than presentation on the blackboard. It is the opinion of the writer that the chief reason for the better results is the vast amount of time saved by using the slides.

AN APPROACH TO ETHICS

BROTHER LASALLE
St. Edward's University

One of the most important tasks of the instructor of accountancy is that of instilling a firm conviction in the minds of his students that a code of ethics is of vital importance to a professional man. The formation of this conviction is just as important as the imparting of accounting techniques because the accountant who practices or condones unethical acts does as much harm to himself and to his profession as does the accountant who is deficient in accounting knowledge.

The development of a professional attitude is in large part the responsibility of the teaching profession. It is during the student's formative years that he must develop not only accounting methods but also correct attitudes. The student usually receives thirty or more credit hours of lecture and laboratory work in theory and practice, but how much time is spent on developing ethical attitudes applicable to the profession of accountancy? The discussion of the ethical problems involved in accountancy is often confined to a discussion of the American Institute of Accountancy's Rules of Professional Conduct in a single lecture period and then only if time permits at the end of a semester. A professional ethical attitude cannot be taught in such a manner.

Most of those who teach or have taught the Rules of Professional Conduct of the Institute have probably prefixed their remarks with the general comment that these rules should be observed because "the major accounting associations prescribe these rules as desirable and that their observance is enforced by disciplinary action." This reasoning is simply a resort to an authority and stresses the negative, punitive reason for observing the code. It does not go to the heart of the matter which, after all is said, can be summarized in this thought: Do it because it's the right thing to do.

The question then arises as to why it is the right thing to do. The problem resolves itself into a determination of the moral binding power of the Rules of Professional Conduct. One must first distinguish between the moral binding power of the code itself and the moral binding power of the material contained in the code.

Taking the code as a rule of a professional society, it may be stated that there

is little or no moral binding power connected therewith. What moral binding power exists in one of fidelity which in this instance is a light obligation. A violation of the code simply as a code is of slight moral consequence. There may even be no obligation where any item of the code is generally held by practically all members and recognized by authority that violations against the strict letter of the law are not against the spirit of the law.

A consideration of the material contained in the code presents a more complex problem. Each item must be considered separately in order to determine whether or not it binds morally by reason of the Natural Law. In order to understand the meaning of the term "Natural Law" one must first understand what is meant by the Eternal Law. The Eternal Law is a Supreme Being's eternal plan for the universe. The Eternal Law extends to all acts and movements in the universe. Bodies obey the tendencies of their nature and follow the laws of gravity, inertia, cohesion, etc. The earth turns upon its axis. Birds build their nests in the same pattern year after year. The Eternal Law applies to all creatures, including man, and directs them in a manner proper to their nature. The Natural Law is the Eternal Law as known to man by reason. Man knows naturally, by reason, that he must do good and avoid evil. He knows that to lie or to murder is wrong. He knows that respect for life and property is right. Man recognizes an order, a plan, in things.

When man observes the dictates of the Natural Law, he does good. When he acts contrary to this law, he does evil. Morality can hence be traced to an observance of this law.

Certain phases of the Natural Law are contained in the Rules of Professional Conduct of the Institute. When an accountant observes those parts which are related to the Natural Law, he does good. When he does not observe those parts which are related to the Natural Law, he does evil. Hence, in order to determine the moral binding power of the code, it is necessary to examine each article and determine how it squares with the Natural Law. A brief consideration of several articles of the code will illustrate this approach to morality.

Article 16 of the code deals with professional secrecy. The moral binding power of that particular item is considered a grave one. The violation would, in most instances, be a serious fault of injustice against the person or persons whose secrets are revealed. Concerning this rule of "secrecy," it may be of interest to note that bankers, trust officers, journalists, social service workers, and other groups are constantly making an attempt to place themselves within the circle of professional relationships in which communications are privileged by law. The law recognizes four relationships as privileged: husband and wife, priest and penitent, physician and patient, lawyer and client. A "committed secret" permits disclosure only where keeping it would produce grave harm to the public, to an innocent third party, or to the person who has committed or received it.

Article 5 of the code deals with misleading statements, failure to report material misstatements, gross negligence in the conduct of an examination or in making a report thereon, etc. These represent violations which are not only contrary to the Institute's rules but also the the Natural Law. Breach of duty towards a client, the public, or third parties is a matter of injustice. Deception, which is involved in this particular article is contrary to the Natural Law. The ethical doctrine in the matter of deceit is that deceit is intrinsically evil. This follows from the fact that

deceit results in a violation of right reason. The power to communicate was given to man for the purpose of expressing what his mind holds as truth. Deceit acts contrary to that purpose. Man has a right not to be deceived. Society cannot exist without natural faith and reliance among its members and deceit destroys such confidence.

Much attention needs to be given to a thorough study of these rules by competent moral authorities in order to present to teachers and practitioners an exact description of their rights and duties. A study of this nature is long overdue. The profession of accountancy has been able to maintain high standards of morality despite the lack of such a study because it has been singularly fortunate in attracting individuals with personal moral integrity of such a character that they would instinctively observe the spirit of the present code even if such a code had never been promulgated.

SERIAL BOND REDEMPTION—BONDS OUTSTANDING AND DOLLAR-PERIOD METHODS

GLENN A. WELSCH
University of Texas

In the usual textbook treatment of discount or premium on serial bonds the Bonds Outstanding Method is suggested as one method of determining the *periodic* amortization. In addition, if it is expected that some of the bonds will be retired before maturity, the Dollar-Period Method is suggested. Whereas the Bonds Outstanding Method gives the *periodic* amortization, the Dollar-Period Method gives the amortization applicable to each series, which is then spread over the life periods. Both methods give the periodic amortization.

It is the purpose of this discussion to show that the Bonds Outstanding Method provides data relative to serial amortization merely by inspection. The result is that students need not be burdened with the additional computation involved in the Dollar-Period Method. Further, the proposed method saves considerable computation time, and is easily explained as well as understood.

The following simplified illustration is used to present the suggested procedure:

ILLUSTRATIVE PROBLEM

The following serial bonds (4% interest per annum) were sold for $34,040:

Serial Number	*Years (Coupons)*	*Par Value*
1	2	$ 8,000
2	3	10,000
3	4	14,000
		$32,000

The usual textbook solution requires computation of periodic and serial amortization using (1) the Bonds Outstanding Method and (2) the Dollar-Period Method. These methods are indicated in Tables 1 and 2 below.

It may be observed that the periodic amortization (in total) is the same in both tables, whereas only Table 2 indicates the serial amortization (in total and by periods).

Table 3 presents the proposed method which merely extends Table 1. The extension procedure is done by ***inspection***.

The determination of serial amortiza-

TABLE 1

BONDS OUTSTANDING METHOD

(Indicates Periodic Amortization Only)

Period	*Par Outstanding*	*Fraction*	*Periodic Amortization*
End of 1st Year	$ 32,000	32/102	$ 640
End of 2nd Year	32,000	32/102	640
End of 3rd Year	24,000	24/102	480
End of 4th Year	14,000	14/102	280
Totals	$102,000	102/102	$2,040

tion in Table 3 is, as indicated, the result of simple inspection of the column headed "Periodic Amortization." It is obvious that, since all serials except the last one (Serial 3) has matured, the $280 fourth period amortization applies to Serial 3 for each period. Similarly, since Serial 2 matures at the end of period 3, the difference between the third and fourth period amortizations ($480–$280) must be the periodic amortization for Serial 2. The same procedure applies to all other series.

Classroom experimentation has shown the proposed method to be more easily explained and understood. Computation by inspection clearly reveals the underlying analysis.

Another approach to this problem which may be of interest is one that may be referred to as the *direct ratio method*. In all the above methods the premium or discount is "apportioned" in a direct ratio to PAR OUTSTANDING. Casual inspection of the methods will show that *par outstanding* and *dollar periods* represent the same values rearranged. This leads to an even greater simplification of the whole procedure. The ratio is simply Premium (or Discount)/Total Par Outstanding. Using the illustrative data the ratio of the PREMIUM to PAR OUTSTANDING is

TABLE 2

DOLLAR-PERIOD METHOD

(Indicates Serial and Periodic Amortization)

Serial	*Par*	*Periods*	*Dollar Periods*	*Fraction*	*Serial Amortization*	*Amortization—By Periods (Years)* 1st	2nd	3rd	4th
1	$ 8,000	2	$ 16,000	16/102	$ 320	$160	$160	—	—
2	10,000	3	30,000	30/102	600	200	200	200	—
3	14,000	4	56,000	56/102	1,120	280	280	280	280
			102,000	102/102	$2,040	$640	$640	$480	$280

TABLE 3

BONDS OUTSTANDING METHOD (PROPOSED)

(Indicates Periodic and Serial Amortization)

(Same as Table 1)				*Serial Amortization*		
Period	*Par Outstanding*	*Fraction*	*Period Amortization*	*Serial 1*	*Serial 2*	*Serial 3*
1	$ 32,000	32/102	$ 640	$160[c]	$200[b]	$ 280[a]
2	32,000	32/102	640	160	200	280
3	24,000	24/102	480	—	200	280
4	14,000	14/102	280	—	—	280
	$102,000	102/102	$2,040	$320	$600	$1,120

By inspection:
[a] From Periodic Amortization Column, period 4 line.
[b] From Periodic Amortization Column, period 3 less period 4 ($480–$280).
[c] From Periodic Amortization Column, period 2 less period 3 ($640–$480).

.02, i.e., ($2,040–$102,000). This ratio (.02) can be used to determine periodic or serial amortization and any part thereof. To illustrate: (These results can be verified in the preceding tables).

(1) Periodic Amortization at end of first year: Par Outstanding times ratio ($32,000×.02)...................	$640
(2) Periodic Amortization at end of fourth year: Par Outstanding time ratio ($14,000×.02)...................	$280
(3) Serial Amortization for Serial 1 for one year ($8,000×.02)............	$160
(4) Unamortized Premium on one-half of Serial 3 at end of two years (necessary because they are being retired). Remaining Part Outstanding time ratio ($7,000×2×.02).................	$280

The above examples are sufficient to illustrate that once the direct ratio between the PREMIUM OR DISCOUNT and PAR OUTSTANDING is computed, any data relative to amortization can be computed readily.

As a matter of choice for instructional purposes or actual usage the writer prefers the *direct ratio method*.

STUDENT ASSOCIATE MEMBERSHIPS

Martin L. Black, Jr.
Duke University

At the request of our President, I wrote sixteen members of the Association for the purpose of securing information in regard to the following questions.

1. How are student memberships secured? Is the present method satisfactory?
2. What efforts are made to integrate material in the Accounting Review with the academic program?
3. Have you any suggestions for better use of the publication?
4. What percentage of accounting majors are Associate Members of the American Accounting Association?

The sixteen members represented institutions of different sizes and in all parts of the country.

In attempting to secure student memberships, the general practice is to pass out application blanks in the advanced classes and also to use posters on bulletin boards. The smaller schools make an additional effort by personal mention of the magazine to their accounting majors. The method of class presentation is not satisfactory in most schools and apparently many instructors feel that something is needed in addition to the announcement, although there is a hesitancy to attempt to "sell" the students or to exert any pressure in order to secure memberships.

The American Accounting Association has recently printed an invitation to accounting students which includes an application blank. This new promotional material should be helpful in securing memberships, since the need for such material was mentioned by several correspondents.

The matter of timing also seems to be important in this connection. The material regarding the Association should be in the hands of instructors, and hence students, early in the semester. The Membership Committee should work on this problem, and possibly do most of their work in the spring so that the membership drive could begin immediately upon the opening of school in the fall. This should be possible since the Membership Committee is appointed early in the calendar year.

The matter of "follow-up" is also im-

portant in securing student membership. Results are poor in those schools where information is handed out and nothing else is done. A check on the application blanks could be made at the end of a few weeks which could be a very effective follow-up. A few professors believe that more subscriptions could be received if the student paid the instuctor, or was billed later for the subscription. The problem of writing a check was believed to have some effect on membership.

A number of answers mentioned the competition between the ACCOUNTING REVIEW and the *Journal of Accountancy*. Those students who might be interested in a professional magazine do not take both but must decide between the two. The *Journal* is slightly less expensive per issue and the students seem to prefer the twelve issues. Personally, I do not see that anything can or should be done about the price competition.

The ACCOUNTING REVIEW appears to be used and to be valuable in graduate courses. From time to time assignments and reading suggestions are made in graduate courses usually where particular articles relate to subject matter under class discussion. In C. P. A. Review courses, extensive use is made of the Professional Examinations section. Practically no attempt is made to integrate the material in the ACCOUNTING REVIEW with undergraduate courses, and I did not receive many suggestions for improvement.

Professors have no method of checking on the percentage of memberships among their accounting majors. Estimates range from 10% to 25% with most of the schools being nearer 10%.

This brief survey indicates, at least to me, that the Membership Committee will have to devote much energy and time to the building up of Associate Memberships. The members of this committee should contact the various schools in their territory more often than one a year; someone has to take the responsibility of seeing that all of us make announcements regarding student memberships.

PROFESSIONAL EXAMINATIONS

A Department for Students of Accounting

HENRY T. CHAMBERLAIN

THE following problems were prepared by the Board of Examiners of the American Institute of Accountants and were presented as the second half of the C.P.A. examination in accounting practice on May 13, 1954. The candidates were required to solve all problems in four and a half hours. The total weight assigned to the three problems is 50 points. Weights were not assigned to the individual problems but a suggested time for each problem was given.

No. 1 (Estimated time—40 to 60 minutes)

All parts of this question relate to federal income taxes and are to be answered with reference to the law and regulations in effect in 1953. An answer sheet has been provided for use with this question.

a. The following 20 statements are to be answered by deciding whether the statement is generally true or false. If the statement is true, place an "X" in the "True" column on your answer sheet; if the statement is false, place an "X" in the "False" column on your answer sheet.

(1) X, an infant, has gross taxable income of $650. He is not required to file a tax return.

(2) T and spouse were legally separated by court decree in November 1953. T properly may file a joint return for 1953.

(3) Brother X and sister Y, both of whom work, maintain their family residence, supporting their aged parents. X and Y may file a joint return, taking advantage of the "split-income" rule.

(4) T, taxpayer, is lessor of certain property on which $50,000 in improvements have been made by the lessee. The mere repossession of the property upon termination of the lease does not give rise to taxable income in respect to the above improvements.

(5) The basis for determining loss on property acquired prior to March 1, 1913 is cost or market value as of March 1, 1913, whichever is lower.

(6) The basis of property acquired as a gift prior to January 1, 1921 is the fair market value at the time the gift was made.

(7) The "holding period" for property transmitted at death, and valued at fair market value at date of death for estate tax purposes, begins to run from the date of death of the decedent.

(8) Periodic alimony payments made pursuant to a decree of divorce are deductible for the purpose of determining adjusted gross income.

(9) In computing the ordinary net income of a partnership, a gain on the sale of a capital asset is included as ordinary net income of the partnership.

(10) Taxpayer, who is on the accrual basis, incurs in 1953 allowable medical expenses of $1,000 which are paid in 1954. This deduction, to the extent allowable, can be taken in 1953.

(11) Taxpayer loses his ring worth $125 while swimming. T may take $125 deduction as a casualty loss.

(12) Taxpayer purchases a coupe for his personal needs. However, the car is too small for his family and he sells it at a $400 loss. This loss is not deductible on T's tax return.

(13) A non-business bad debt is treated as a short-term capital loss for the taxable year in which it becomes entirely worthless.

(14) Christmas bonuses paid by a taxpayer to employees in his business are deductible for the purposes of determining adjusted gross income.

(15) Husband and wife file a joint declaration of estimated tax, paying $800. However, they file separate tax returns. They may divide the $800 between them in any manner they see fit on the returns.

(16) A corporation on the accrual basis may not claim deduction for salary accrued to an officer even though he does not actually or constructively own any of its outstanding stock unless such salary is actually paid during the taxable year or within two and one-half months thereafter.

(17) Interest represented by cashable coupons, which have matured but are not cashed prior to the end of the taxable year, constitutes income to a taxpayer reporting on the "cash basis."

(18) The installment method of reporting income may not be used for casual sales of personal property if the selling price does not exceed $1,000.

(19) In computing the ordinary net income of a partnership, a deduction is allowed for contributions made.

(20) When property is contributed to a partnership by a partner, the basis of such property to the partnership is the basis to the contributing partner.

b. On January 1, 1953, Carter became general manager of the Lakeside Hotel. His salary was to be $500 per month. During the year he received rent from his former residence at the rate of $110 per month.

On September 30, 1953, Carter sold for $1,500 certain shares of stock which he had received in 1942 as a gift from his father. The cost of the shares to his father had been $1,750, but on the date of the gift the fair market value was $1,250.

On December 20, 1952, Carter had pledged $75 as his 1953 contribution to his church. On November 20, 1953, he gave a check for the 1953 pledge, plus $100 to cover his pledge for 1954. On December 16, 1953, he also pledged $50 to the American Red Cross which he paid in cash in January 1954.

As required in a separation decree, Carter paid in 1953 an $1,800 annual payment to his divorced wife, $400 of which she spent to support their child of whom she had been given custody in accordance with the court decree. The divorced wife's cousin also contributed $1,000 to the child's support. The child had no income.

The following are to be answered by placing an "X" in the column for the letter which identifies the correct amount for each situation:

(1) If Carter makes no donations other than the ones mentioned, he may deduct in his return for 1953 as charitable contributions: (a) $75, (b) $125, (c) $175, (d) $225, (e) some other amount.

(2) On the sale of stock, Carter realized:
(a) Long-term capital gain of $125.
(b) Long-term capital loss of $125.
(c) Long-term capital gain of $750.
(d) Ordinary gain of $250.
(e) No gain or loss.

(3) In regard to the alimony paid to the divorced wife, Carter may deduct: (a) $400, (b) $1,400, (c) $1,800, (d) 0, (e) some other amount.

(4) If Carter makes no other payment in support of the child in custody of the divorced wife, the child may be claimed as a dependent by: (a) Carter, (b) Carter's divorced wife, (c) the divorced wife's cousin, (d) all three, (e) none of the three.

c. The following are to be answered by indicating the letter which identifies the correct answer for each situation:

(1) In June 1953, A gives to son, B, ten X Company bonds which cost A $10,000 when purchased in November 1937, and which have a fair market value of $9,000 at date of gift. In October 1953, B sells the ten X Company bonds for $8,000. This transaction for B results in:
(a) Short-term capital loss of $1,000 (100% of actual loss).
(b) Long-term capital loss of $500 (50% of actual loss of $1,000).
(c) Long-term capital loss of $1,000 (50% of actual loss of $2,000).
(d) Long-term capital loss of $1,000 and a short-term capital loss of $1,000.
(e) No capital gain or loss.

(2) John, a calendar-year taxpayer who keeps his records on the accrual basis, receives on October 1, 1953 a payment of $4,500 covering rent for a three-year period, commencing January 1, 1953, on a store which he owns. For the year 1953, John should report as gross income, with respect to the rent received: (a) 0, (b) $375, (c) $1,500, (d) $4,500, (e) some other amount.

(3) B, who is 16 years old, earns $300 during the taxable year by doing odd jobs in the summer. This was his entire gross income for the year for federal income tax purposes. No income tax was withheld by his employer.
(a) B is required to file a tax return.
(b) B need not file a tax return but his father, Y, must include on his return the $300 earned by B.
(c) B need not file a tax return, and his father need not include on his return the $300 earned by B.
(d) B must file a return but pays no tax and Y, his father, must include the $300 on his return.
(e) B must file a return and pay a tax if Y, his father, wishes to take a $600 deduction for B.

(4) Taxpayer, T, sells in June 1953 for $1,250 ten shares of Alameda Corporation stock which he acquired as a gift in June 1953 from his father, Y. Y purchased the stock in May 1949 for $800. At the time of the gift the stock had a fair market value of $1,000. This transaction for T results in:
(a) Short-term capital gain of $250 (100% of actual gain).
(b) Long-term capital gain of $225 (50% of actual gain of $450).
(c) Long-term capital gain of $450 (subject to a deduction of 50% of the excess of net long-term capital gain over net short-term capital loss).
(d) Short-term capital gain of $450 (100% of actual gain).
(e) Some other amount.

(5) An unmarried taxpayer 60 years of age with no dependent has adjusted gross income of $3,000. During the current taxable year, he paid fees of $200 to physicians and $20 for eye glasses. He also paid $300 hospital

expenses for a friend. What amount is deductible as medical expenses? (a) $50, (b) $70, (c) $350, (d)$370, (e) answer other than indicated.

d. Dr. J (a retired M.D.) died on December 19, 1953. Since retiring from his practice of medicine he had operated three farms, owned by himself. He always had rendered his income tax return on a cash basis. It so happened that the net income on this basis for 1953 to the date of death was only $4,100. During 1953 he made contributions to church, Red Cross and the County Chest of $3,800. At the time of his death he was married to a woman who in 1953 had net cash income of $3,300 from a farm owned by her. After the death of Dr. J. it was discovered that he had unsold grain in three different warehouses and some sheep ready for market, the grain and sheep together being worth $11,000. Dr. and Mrs. J both were over 65 years of age at the time of his death.

You are asked by the executor of the estate of Dr. J to make up the federal income tax return for the decedent and his wife. He is agreeable to a joint return for 1953 if you advise it. Answer the following questions:

(1) Will you file a joint return?
(2) Will you include the $11,000 in the joint or the separate returns?
(3) Who will pay the income tax on the $11,000?

e. The Blank Corporation has authorized and issued 11,000 shares of common stock and retained earnings of $7,000. Of these shares, 1,000 are treasury stock and the Alpha Corporation owns 3,400 shares.

What amount of net income from the dividends received by Alpha will be subjected to normal and surtax if Blank declares and pays:

(1) A dividend of $1.00 per share?
(2) A 5% stock dividend?
(3) A dividend on each share of Blank stock of 1/20 share of Alpha capital stock which has an adjusted basis to Blank of $10 per share and a fair market value of $12 per share?

No. 2 (Estimated time—60 to 80 minutes)

Able, Baker and Charles were partners in a service business until February 15, 1953, at which time Baker withdrew. Able and Charles continued the business until July 1, 1953 when they admitted Doe as a partner. They have continued to operate the same business.

You are to prepare a statement showing source and application of funds for the business for the year from January 1, 1953 to December 31, 1953. Also prepare a schedule in good form showing changes in working capital. Preparation of a work sheet is not required, but your principal computations should be presented in good form.

Comparative balance-sheets and additional information follows:

	Balance 12/31/52	*Balance 12/31/53*	*Increase or (Decrease)*
Cash	$ 3,675	$13,239	$ 9,564
Trade accounts receivable	3,241	5,526	2,285
Sundry receivables	420	100	(320)
Cash value of life insurance	8,280	5,020	(3,260)
Supplies and prepaid expenses	983	1,232	249
Notes receivable—trade	2,050	3,140	1,090
Goodwill	5,000	1,311	(3,689)
Land	3,000	3,000	—
Building and equipment	32,338	38,738	6,400
Allowance for depreciation	(14,211)	(13,374)	837
	$44,776	$57,932	$13,156
Trade accounts payable	$ 2,680	$ 950	$(1,730)
Notes payable—Baker	—	10,000	10,000
Bank loan	—	1,000	1,000
Installment equipment notes	—	7,600	7,600
Accrued expenses	1,406	1,972	566
Able, capital	12,372	12,370	(2)
Baker, capital	15,946	—	(15,946)
Charles, capital	12,372	11,170	(1,202)
Doe, capital	—	12,870	12,870
	$44,776	$57,932	$13,156

Additional Information

1. Until February 15, 1953, Able, Baker and Charles divided profit and loss equally. On February 15, 1953, Baker withdrew from the partnership under an agreement that he was to accept $4,000 in cash and a partner-

ship note for $10,000 in full settlement of his interest. The note is payable in installments of $2,000 each six months starting March 1, 1954. At the time of his withdrawal his drawings for the year to date had exceeded his $570 share of net profits by $420.

In connection with Baker's withdrawal, the entire Goodwill account was written off against capital and the insurance policy on Baker's life was cancelled at its cash surrender value of $5,360.

2. Able and Charles continued as equal partners from February 15 until Doe was admitted to the firm on July 1, 1953, during which period profits amounted to $8,212. On July 1, 1953 Doe paid in $12,000 cash for which he received a one-third interest in the assets and in profits and losses. The net assets at June 30, 1953 amounted to $26,622.
3. Able withdrew $7,200 and Charles $8,400 during the entire year. Doe withdrew $4,700 after he became a partner. Except for the transactions described, the only other entries in the partners' capital accounts were for division of profit and loss.
4. During the last one-half of the year some equipment was sold for $1,000 cash. The original cost of this equipment was $3,700 and accumulated depreciation was $2,940. New equipment costing $10,100 was purchased. Installment notes of $8,000 due $200 per month were given in part payment.
5. In December, $947 of accounts receivable were written off as uncollectible and obsolete supplies amounting to $369 were written off to expense. The notes receivable are due within one year and are believed to be collectible.

No. 3 (Estimated time—90 to 130 minutes)

The Reese Extract Company produces flavoring extracts and spices for food products. The Company has been successfully operated for many years and carries an extensive line, but vanilla extract is its major product.

Vanilla extract is produced in two processes of percolating and mixing. In the percolating process, chopping of vanilla beans, percolating, and drying operations are carried out, while the mixing process has only the mixing operation. Inventories are carried in percolating tanks, and in storage tanks both before and after the mixing process.

In the chopping operations, a sufficient number of beans are chopped for one batch of extract and placed in the percolator. Ten percolators are used, so that the production of the extract is continuous. The extract is piped from the percolator to storage tanks, while the residue is carried to a dryer. The alcohol in the residue is recovered in the drying process and returned to storage. The dried residue is then discarded as waste.

Eleven hundred pounds of beans are chopped and sent to the percolator, where four hundred and five gallons of alcohol and sufficient water to make the mixture total 1,000 gallons are added to make one batch of extract. Eight hundred gallons of extract, 45% alcohol, is produced in each batch, the remainder going to the dryer, or is lost in the percolating process. Thirty-five gallons of alcohol are ordinarily recovered from the dryer for each batch.

The 45% strength vanilla extract is then placed in storage tanks to await further processing. From these storage tanks, 400 gallons are drawn at a time and piped into a mixing tank where it is mixed with a sugar and water solution. When completely mixed, the alcohol content has been reduced to 36%.

The sugar and water solution is prepared by mixing ten pounds of sugar with each gallon of water in the mixing tank. The contents of the mixing tank are then piped into storage tanks and, from there, piped to another location for packaging. For the purpose of this problem, the storage tanks containing the 36% strength extract are to be considered the finished goods stage.

Since labor is not a material item in the production of vanilla extract, wages are charged to burden. Manufacturing expenses are accumulated in two burden accounts, one for the percolating process, and one for the mixing process. Storage and chopping costs are treated as a part of the burden costs of their respective processes. These costs are then allocated to production in each process.

Burden incurred for the period was as follows:

Percolating process	$32,832
Mixing process	12,800

Alcohol costs fifty cents a gallon from the supplier, but a federal tax of $20.50 is levied on each gallon purchased. A rebate of $19 a gallon of alcohol is allowed for all alcohol used in the production of extract. Usage is determined by applying the percentage strength to the quantity of extract piped to the packaging operations. Amounts of recoverable tax are excluded from these inventories and from manufacturing cost but are recorded in a separate account.

The first-in, first-out method is followed for inventories in the percolating process, but the weighted average method is used for all other inventories, including those in storage tanks.

Periodic inventories have been taken, the results of which are as follows:

	December 31, 1952	
In Process, Percolators, $\frac{1}{3}$ finished	4 batches	$6,370
Storage tanks, 45% strength	3,200 gallons	6,268
Mixing process	None	
Storage tanks, 36% strength	2,000 gallons	3,544
	December 31, 1953	
In Process, Percolators, $\frac{1}{3}$ finished	8 batches	
Storage tanks, 45% strength	4,000 gallons	
Mixing process	None	
Storage tanks, 36% strength	2,500 gallons	

During the year of operations, 130 batches were started in the percolators; 100,000 gallons of 45% strength extract was piped into the mixing process and 250,000 pounds of sugar were added to the solution. Average cost of vanilla beans was fifty cents a pound, while sugar cost five cents a pound.

You are to prepare:

a. Manufacturing statement showing costs, units, and prices by processes.

b. Computations showing the rebate to be claimed from the federal government for the period and the amount of deferable tax applicable to the inventories which have not gone to the packaging department.

Solution to Problem 1

(a)

1. False
2. False
3. False
4. True
5. False
6. True
7. True
8. False
9. False
10. False
11. False
12. True
13. True
14. True
15. True
16. False
17. True
18. True
19. False
20. True

(b)

Item 1 C
Item 2 E
Item 3 C
Item 4 E

(c)

Item 1 A
Item 2 D
Item 3 C
Item 4 C
Item 5 B

(d)

Item 1 Yes
Item 2 No
Item 3 No income tax will be paid on the $11,000.00.

(e)

Item 1 The dividend will be $2,380.00 and the dividend credit will be $2,023.00.
Item 2 None
Item 3 The dividend will be $2,040.00 and the dividend credit will be $1,445.00.

Solution to Problem 2

ABLE, CHARLES AND DOE
STATEMENT OF APPLICATION OF FUNDS
JANUARY 1, 1953 TO DECEMBER 31, 1953

Funds Provided		
Net income for the year	$22,699.00	
Add depreciation	2,103.00	
	$24,802.00	
Less profit on sale of equipment	240.00	$24,562.00
Contribution by Doe	$13,311.00	
Less Goodwill	1,311.00	12,000.00
Sale of equipment		1,000.00
Cash surrender value of life insurance realized on retirement of Baker		5,360.00
		$42,922.00
Funds Applied		
Retirement of Baker	$14,000.00	
Less notes due after December 31, 1954	6,000.00	$ 8,000.00
Purchase of equipment	$10,100.00	
Less notes due after December 31, 1954	5,200.00	4,900.00
Partners' drawings		21,290.00
Increase in cash surrender value of life insurance		2,100.00
Increase in working capital (Schedule)		6,632.00
		$42,922.00

SCHEDULE OF WORKING CAPITAL CHARGES

	December 31 1952	*December 31 1953*	*Increase or (Decrease)*
Current Assets			
Cash	$ 3,675.00	$13,239.00	$ 9,564.00
Trade accounts receivable	3,241.00	5,526.00	2,285.00
Sundry receivables	420.00	100.00	(320.00)
Supplies and prepaid expenses	983.00	1,232.00	249.00
Notes receivable—Trade	2,050.00	3,140.00	1,090.00
Total	$10,369.00	$23,237.00	$12,868.00
Current Liabilities			
Trade accounts payable	$ 2,680.00	$ 950.00	$ 1,730.00
Notes payable to Baker—Current		4,000.00	(4,000.00)
Bank loan		1,000.00	(1,000.00)
Installment equipment notes—Current		2,400.00	(2,400.00)
Accrued expenses	1,406.00	1,972.00	(566.00)
Total	$ 4,086.00	$10,322.00	$(6,236.00)
Working capital	$ 6,283.00	$12,915.00	$ 6,632.00

CALCULATION OF NET INCOME

Capital balances, 1-1-53:		
Able	$12,372.00	
Baker	15,946.00	
Charles	12,372.00	$40,690.00
Contribution by Doe. Cash, $12,000.00 and Goodwill $1,311.00		13,311.00
		$54,001.00

Charges against capital:			
Payments to Baker		$14,000.00	
Write-off of Goodwill		5,000.00	
Drawings:			
Able	$7,200.00		
Baker	990.00		
Charles	8,400.00		
Doe	4,700.00	21,290.00	40,290.00
			$13,711.00
Capital balances, 12-31-53:			
Able		$12,370.00	
Charles		11,170.00	
Doe		12,870.00	36,410.00
Net income for year			$22,699.00

Solution to Problem 3

PERCOLATING DEPARTMENT

	Cost	*Gallons*
Work in process, 12-31-52—half finished	$ 6,370.00	4,000
Vanilla beans, 1100 lbs.×130 batches×$.50	71,500.00	
Water	—	
Alcohol, 405 gals.×130 batches×$2.00	105,300.00	130,000
Burden	32,832.00	
Total	$216,002.00	134,000
Work in process—(See Note A) 12-31-53, half finished	11,906.00	8,000
Partial cost finished goods	$204,096.00	126,000
Shrinkage—20% of 126,000 gals.		25,200
Alcohol recovered from dryer (126×35×$2.00)	8,820.00	
	$195,276.00	
Tax rebate on alcohol lost (10×126×$19.00) (Note B)	23,940.00	
Cost transferred to storage—$2.1749 per gal.	$219,216.00	100,800

NOTE A

The units of work were as follows:

To complete opening inventory of work in process ($\frac{1}{2}$ of 4)		2
Started in process	130	
Less work in process at end of period $\frac{1}{2}$ of 8	4	126
Total equivalent units of work		128

The value of the ending inventory of work in process is computed as follows:

Vanilla beans—8×1100×$.50	$ 4,400.00
Alcohol 8×405×$2.00	6,480.00
Burden 4/128 of $32,832.00	1,026.00
	$ 11,906.00

NOTE B

The alcohol lost in process, per batch of finished goods is as follows:

Alcohol required for each batch		405 gals.
Recovered:		
45% of 800 gals. of finished goods	360 gals.	
Dryer	35 gals.	395 gals.
Lost in process		10 gals.

MIXING DEPARTMENT

	Cost	Gallons
Raw material received from storage:		
Inventory in storage, 12-31-52	$ 6,268.00	3,200
Received from Percolators	219,216.00	100,800
Total @ $2.168 per gal.	$225,484.00	104,000
Inventory in storage, 12-31-53 @ $2.168 gal.	8,672.00	4,000
	$216,812.00	100,000
Sugar, 250, 000 lbs. @ $.05	12,500.00	
Water		25,000
Burden	12,800.00	
Cost of extract @ $1.9368 per gal.	$242,112.00	125,000

(b) *TAX REBATE TO BE CLAIMED*

Inventory in storage, 12-31-52—36% strength	2,000 gals.
Received from Mixing department	125,000 gals.
Total	127,000 gals.
Inventory in storage 12-31-53—36% strength	2,500 gals.
Transferred to Packaging—36% strength	124,500 gals.

The rebate to be claimed is 36% of 124,500 @ $19.00 per gallon or $851,580.00.

TAX APPLICABLE TO INVENTORIES

Percolator	
8 batches×405×$19.00	$ 61,560.00
45% Storage	
4,000 gallons containing 45% alcohol or 1,800 gals at $19.00 per gallon	34,200.00
36% Storage	
2,500 gallons containing 36% alcohol or 900 gallons at $19.00 per gallon	17,100.00
	$112,860.00

ASSOCIATION NOTES

E. BURL AUSTIN

KANSAS

University of Wichita:

ROBERT L. PEASE, formerly of Ft. Hays State College, has been added to the staff as Assistant Professor.

FRANCIS D. JABARA has been promoted to the rank of Associate Professor.

WILLIAM F. CRUM has been elected President of the Wichita Chapter, NACA, for the coming year.

FRANCIS JABARA addressed the Wichita Chapter of The National Petroleum Accountants Society on the subject of "Direct Costing."

WILLIAM F. CRUM addressed the Wichita Chapter of the National Machine Accountants Society on the subject of "Punched Card and Machine Accounting in Colleges."

H. C. KRUEGER has been serving in part-time capacity as Assistant Comptroller of the University during the past year.

MICHIGAN

Wayne University:

A special feature of the summer program was a two weeks' course in computing machines and applications held during the month of June. Two nationally known firms of public accountants cooperated in the instruction. They were Price Waterhouse & Co. and Touche, Niven, Bailey & Smart. Participating also were nationally known known experts in the field of electronics systems design.

NEW YORK

Long Island University:

JOSEPH W. DWORETSKY and PHILIP WOLITZER have been elevated to the rank of Associate Professor.

The newly organized College of Business Administration began functioning in the fall semester. HOWARD K. RICE has been appointed Dean and LEO SCHLOSS has been appointed Associate Dean of the college.

NORTH CAROLINA

Duke University:

EVERETT J. MANN is on leave of absence for a one-year assignment with the Office of European Economic Cooperation, with headquarters in Paris.

GORDON E. BELL has been appointed Assistant Professor. BELL was formerly at Catawba College.

MARTIN L. BLACK, JR., is serving as Secretary-Treasurer of the North Carolina Board of CPA Examiners.

OHIO

Xavier University:

The Cincinnati Chapter, NACA, awarded its annual manuscript prize to JAMES H. TOPMILLER, a *cum laude* graduate of June, 1954.

JAMES R. FAVRET, Secretary-Treasurer of the Ohio State Board of Accountancy, addressed the Accounting Society at its third annual dinner meeting in April.

The Cincinnati Control, Controllers Institute of America, held its second educational meeting in February at the University of Cincinnati. A panel of three controllers discussed the controller's responsibilities in large, medium, and small businesses.

WYOMING

University of Wyoming:

JEAN F. MESSER has been appointed Head of the Department of Accounting. WALTER E. DANIELS has resigned as Head of the department.

LOUIS C. JURGENSEN has been appointed Associate Professor.

BOOK REVIEWS

ARTHUR M. CANNON *Editor*

Accounting

Basic Accounting, Part I. Homer St. Clair Pace and Edward J. Koestler. (New York: Pace & Pace, 1954. Pp. viii, 360. $6.50.)

This book is one of a six-unit set in the Pace Accounting Series. Other units in the series will be reviewed in forthcoming issues.

Pace books have served in the cause of accounting education since 1906, when Pace Institute (now Pace College) was founded in New York City. Classes the country over have been using these books in Pace Institutes of Accounting. Timely revisions have kept the Pace series abreast of developments through the years.

The present volume is intended as a one-semester study of introductory accounting. It is divided into eight sections. Section 1 (pp. 1–19) defines basic concepts. Section 2 (pp. 20–47) introduces bookkeeping. This section starts with a discussion of "financial position" and gives a good going-over of the more common balance sheet items. The section then explains accounts, debit and credit, journal and ledger; it ends with an extended illustration of opening a set of books.

Section 3 (pp. 48–82) is devoted to journalizing and posting procedure for everyday transactions for buying, selling, paying and receiving. The troublesome point of taking a profit (or loss) on a sale is overcome by suggesting that "capital" be credited (or debited). Section 4 (pp. 83–114) gives a thorough explanation of the use of temporary accounts for income and expense, ending up with the procedure for "disposing" of the temporary accounts whenever the "profit or loss outcome" is to be determined. Wisely, the reader is told that temporary accounts are disposed of by "transferring" their balances; this is a more teachable approach than the more conventional stress on "closing entries."

The 5th Section (pp. 115–151) deals with end-period procedure as it is typically observed in terms of adjusting entries, trial balances, transfer-outs of balances in income and expense accounts, and financial statements. Conspicuous here is the omission of the familiar work sheet. The reader is told that the profit and loss statement can be prepared from the data found in the profit and loss account, and that the balance sheet can be prepared from the data found in the post-closing trial balance. An interesting device is the use of "transfer entries" to dispose of end-period accruals at the start of a new period; again, this seems superior as a teaching device to the conventional "reversing entries."

Part 6 (pp. 152–190) deals with cash and cash records; it is the first of three sections on specialized journals and ledgers. This section discusses commercial paper, mainly bills of exchange, notes and bank checks; how to bank money and reconcile the bank statement balance with the balance in the cash account; how to design and operate a simple form of cashbook for cash receipts and disbursements; and how to create and operate an office cash fund. The discussion here, as indeed throughout the book, is down to earth, practical, and similar to a manual in the care and attention paid to specific "how to do it" points.

The 7th section (pp. 191–231) continues with the subject of specialized records: purchase book, sales book, payroll record and employee earnings records. A brief but informative discussion is given of each operation in which a particular accounting book is kept; exceptional events such as returns and allowances and how to deal with them are discussed; and, with respect to payroll matters, considerable material is provided to give any beginning bookkeeper an adequate steer in this important subject.

No. 8 (pp. 232–266) is the final section of the "text" of the book, and deals with subdivision of the ledger, control accounts, and a simple but useful discussion of the analytical possibilities of financial statements. The paragraphs and illustrations concerned with subdivision of the ledger and control accounts contain many helpful suggestions and the treatment is quite complete for an introductory book. The statements illustrated use currently accepted terminology and classification. An interesting feature of the profit and loss statement on page 257 is the three-way division of "operating expenses" into selling, administration, and general.

Some eighty-three pages in the back of the book are devoted to questions and problems for written assignments, identified by the sections to which they relate. These assignments have been tested over a long span of years and by many teachers.

HARRY D. KERRIGAN
Professor of Accounting
University of Connecticut

Intermediate Accounting, revised edition. Arthur W. Holmes and Robert A. Meier. (Homewood, Illinois: Richard D. Irwin, Inc., 1954. Pp. xvi, 834. $6.50.)

This is a revision of the earlier edition published in 1949 and favorably reviewed in the January 1950 issue of THE ACCOUNTING REVIEW.

At first glance, the book may appear to be rather long. This presumption is misleading as 262 of the 834 pages consist of questions and problems. This leaves 572 pages of text and illustrations. There were 881 pages in the previous edition. The authors have condensed the text material consciously by the elimination of many particular sentences not directly related to accounting. The chapters on accounting for corporate capital have been drastically reduced. A relatively large amount of material has been completely rewritten. The quality of the text has been improved and new material has been added.

It is obvious that the authors have written a textbook addressed to students, not professors. Nor is the book intended to serve as a reference guide for the practitioner, for it does not go into matters of either practice or theory exhaustively. It is what the authors intended it to be, a text book of fundamental accounting knowledge geared to the average college junior. There is an obvious attempt to present basic accounting theory in such a manner that the average student can understand it and bring it into focus. This is accomplished by avoiding detailed theoretical discussion over controversial theories and treatments, and by avoiding too frequent reference to accounting and auditing practice. On the other hand, important recent accounting developments have been included.

The subject matter included in the twenty-eight chapters has been changed but little from the earlier edition. Chapter II, Factory Costs, and Chapter III, Working Sheets, have been combined in a single Chapter IV. Financial Statements have been expanded to two chapters. Chapter XVII, Actuarial Science, has been moved to the end of the book as Chapter XXVIII. These changes indicate a shift in emphasis rather than a change in the nature of the material. The choice of topics covered will meet with general approval, for the student who goes no farther with his accounting can obtain a well rounded background of fundamental accounting theory and analytical uses to which it may be applied.

Chapter XXVI, Statement of Application of Funds, has been completely re-written and employs a relatively new and different approach. The straightforward treatment used by the authors has much to recommend it. One who has followed the developments and arguments which have centered around this analytical tool of the accountant over the years must feel at times that the theories and techniques back of the working papers supporting this statement have become increasingly difficult for the student to understand clearly. Mechanics has tended to obscure objective understanding. The reviewer believes that he still can do a better job of explaining and clarifying the supporting working papers by going back to earlier editions of current textbooks. Evidently he is in the minority; so he gives in with good grace. Of the newer treatments, that employed by the authors seems to hold the most promise.

Chapter IX, Income Determination, appears to be over-simplified at a number of points despite the fact that the authors state in their preface that this chapter is written at a mature level. Two examples follow in support of the reviewer's contention. It is not sufficient to state that "revenue is considered to be realized at the time a sale is completed." The only qualification stated is that "In those cases where the facts diverge from the implications of the principle, income may be determined on the basis of the estimated stage of completion of the sales development process." Such over-simplification appears at a number of points in the book and probably stems from the conscious effort of the authors to avoid complexities and exceptions. The authors are in good and accepted company when they state "Conservatism applies both to the balance sheet and to the income statement. Assets on their way through the operating cycle to cash should be valued conservatively at their net realizable value for contrast with the amount of existing liabilities." One wonders when writers and the accounting profession will cease to rely on conservatism as a virtue in itself. All too often conservatism is given lip service when one cannot or will not delve deeper to determine a logical application of accounting theory to a particular situation.

The problem material is adequate and of good quality. Some problems in the first edition have been deleted, others have been clarified, and a number of new ones have been added. The number of problems included will permit instructors to vary the assignments considerably.

This book will be well liked by many instructors and students. The authors definitely have strengthened and improved it. They are to be commended for the extent and thoroughness of this revision.

Harvey G. Meyer
Head, Department of Accounting
The University of Tennessee

Materials on Accounting, second edition. Robert Amory, Jr. and Covington Hardee. (Brooklyn: The Foundation Press, Inc. 1953. Pp. xxxvi, 592. $7.50.)

This volume is a revision of *Materials on Accounting* (1949) by Robert Amory, Jr. which was reviewed in the April, 1950 Accounting Review. The purpose is to supplement a standard textbook on accounting for a course offered to students enrolled in a law school, primarily for those who have had no previous training in accounting or bookkeeping. Each chapter is cross referenced to appropriate chapters in *General Accounting* (1949) by Finney and *Fundamentals of Accounting* (1953) by Mason and Davidson. Students prepare for the course by reading the assigned material in a standard text and reading the material and cases and solving the problems in this volume. The cases and problems become a basis for the class discussion.

The chapter coverage and space devoted to each are as follows:

Chapter	*Title*	*Pages*
1.	General Introduction	1–16
2.	The Double-Entry Bookkeeping System	17–52
3.	Revenue	53–100
4.	Costs and Reserves	101–151
5.	Inventory Costs	152–201
6.	Cost of Borrowed Capital	202–233
7.	Cost of Long-Term Productive Assets	234–287
8.	Transactions Involving Proprietary Accounts	288–362
9.	Consolidated Statements	363–422
10.	Analysis of Financial Statements	423–482
11.	Accountants' Duties and Limitations on Their Practice	483–529
12.	Cost Accounting	530–586
Index		587–592

This revision presents several significant changes in the content and arrangement of the material, and the

authors have been able to reduce the volume by a net of two chapters and approximately 200 pages.

Except for certain of the materials in Chapter 2 (bookkeeping cycle), Chapter 10 (statement of source and application of funds), and Chapter 12 (cost accounting), the book does not follow the general presentation and methodology of a traditional accounting text. The authors have made extensive reference to or have quoted from the Accounting Research Bulletins of the American Institute of Accountants, the Accounting Series Releases of the Securities and Exchange Commission, and significant law cases relating to the principles of accounting. Many partial or complete annual corporate reports and statements, several Harvard Business School cases, editorials and articles from periodicals, and other miscellaneous materials have been included. The reference and case material has been appropriately selected and located.

The problem material, except in Chapter 2, is largely of the non-technique type. In fact, the narrative material contained in many of the problems would lead one to classify these as short cases. This case type of problem should challenge the law student who is familiar with the case method of instruction.

In reviewing the details of the chapters, one is particularly impressed with the appropriate inclusion and adequate coverage of certain topics. The following represent several of such topics: LIFO (Ch. 5); high cost of replacement of fixed assets (Ch. 7); treasury stock, stock dividends, split-ups, and quasi-reorganizations (Ch. 8); problems of valuation (Ch. 10); borderline between accountancy and law (Ch. 11); and cost accounting and the courts (Ch. 12).

Inasmuch as a significant number of the chapters include topics which are ordinarily covered in a course in intermediate or advanced principles of accounting, it is felt that the student may be under somewhat of a handicap because of not having had any previous study in accounting. Even though this volume and the supplementary accounting text will provide a rapid coverage of the bookkeeping cycle and related topics, it is felt that many students may not acquire an adequate background in the principles of accounting and thus may have difficulty in grasping the difficult topics. It would appear that the student could greatly benefit by completing a year of principles of accounting before studying this volume in a law school. If this suggestion were followed, Chapter 2, dealing with the bookkeeping cycle, could be omitted.

In the discussion of the flow of funds analysis (statement of source and application of funds), it appears that an undue emphasis has been placed upon the importance of the work sheet technique. A more adequate understanding of the underlying nature, purpose and use of the statement would appear to be more important to any non-accountant than the mastery of the work sheet technique. The latter is quite baffling, even to accounting majors.

Two minor points might be mentioned. Chapter 9, consolidated statements, is devoted almost exclusively to the balance sheet, with very little discussion of the earned surplus and income statements. This probably is not a serious criticism because the concept of the consolidated statement appears to be adequately covered. Chapter 12, cost accounting, does not include any problems on job, process or standard costs. Apparently, the authors have included the descriptive material on these topics in order to facilitate the understanding of the law cases in the latter part of the chapter.

Despite the comments mentioned in the two previous paragraphs, the reviewer feels that the authors have succeeded in providing a useful volume and an interesting approach for the conduct of the accounting course in the law school. Students who achieve an adequate understanding of the topics presented will find that their courses in the law school dealing with business organizations, etc. will be more meaningful. Furthermore, the student will find this material most useful to him after he graduates and is in practice.

Bruce Futhey
Associate Professor of Accounting
Michigan State College

Cost Accounting, fourth edition. W. B. Lawrence and John W. Ruswinckle. (New York: Prentice-Hall, Inc., 1954. Pp. 770. $9.25.)

John Ruswinckle has undertaken the task of converting a reliable old book, which was at its best during the heyday of the "mechanistic era" of the teaching of accounting, into a text to meet the needs of today's classes and students. When one considers how far the art of accounting instruction has come in those years, one realizes how big a job Ruswinckle had to do. Yesterday's emphasis on the development of cost accounting sometimes almost for its own sake has given way to today's emphasis on accumulating and using cost information primarily for the improvement of managerial effectiveness. To convert a book which typified the successful college text of 20 years ago to a vehicle for modern classroom use is no mean task.

The new book has much of the old in it. A good many of the chapters are essentially the same as they were in the earlier editions. In some cases, the material has been dressed up with more fitting chapter titles and subtitles. In many cases, additional material has been added to already existing chapters. For example, the chapters on Material Cost, Material Valuation, Labor Costs, Budgets, Standard Costs, and others are essentially the same as they were before, although they are not found in the same sequence as in the earlier editions.

There are substantial revisions to other chapters. In some cases, they amount essentially to a complete rewrite of the old material. The chapters on Applying Indirect Costs to Products, Use of Departmental Rates, and Periodic Financial Statements are examples of such major renovation. In general, the renovation which has been done is that which was most badly needed. The new author has addressed himself to the task of making the material more teachable for the teacher and more meaningful to the student. He has added quantities of illustrative material and has modernized the material wherever he has made substantial changes from the old edition.

There are a few new chapters, added for the purpose of giving currency to the volume. Notable among these is the chapter on Direct Costing, which is presented as a new idea not yet applied widely enough to have proven its worth to accountants and to business. To the reviewer, this seems unfortunate. Discriminating students can quickly discern that direct costing provides a sounder basis for a short-range cost control program than does more orthodox cost accounting; and that, contrariwise, the purposes of traditional profit-measurement accounting are served more perfectly by the "full cost" approach. The absence of suitable emphasis in this chapter on the necessity for using different costs for different purposes, so much a part of the philosophy of progressive industrial accounting, weakens this chapter.

Throughout the new edition there remains a strong mechanistic flavor. The simplest underlying principles are sometimes hard to find amid the rules as to how certain costs should be prorated to cost centers. The "how" of cost accounting is quite thoroughly explored, sometimes at the sacrifice of the "why." It is this lack which characterized the earlier editions of Lawrence; the vacuum is partially filled in the new edition.

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Practical Financial Statement Analysis, third edition. Roy A. Foulke. (New York: McGraw-Hill Book Company, Inc., 1953. Pp. xxi, 710. $7.50.)

Prior to the "decade of accounting reform" (1930–40) the development and use of financial ratios tended to be fruitless, due to a rather serious lack of accounting uniformity, consistency and terminology. Adequate standards did not become readily available until the advent of the Securities and Exchange Commission accompanied by the raising of public accountancy standards through the various accounting associations. Gone are the days when accountant's certificates referred to consistency "in accordance with fundamental principles of accounting," with no such principles available in any written or codified form to assist people in understanding and interpreting accounts.

Mr. Foulke is indeed aware of the history and background of accounting developments and improvements and his book will enable many a business executive, security analyst and investment banker to capitalize on his knowledge, and, perhaps, become "expert" in analyzing accounting statements without having to become expert in their compilation and creation.

It was a pleasure to read of the importance and significance that the author attaches to accounting figures and their results in the management of business. Without doubt, accounting as an art has obvious limitations as an instrument in establishing and reflecting economic and meaningful facts. Accounting records only past costs and actual past costs may not be fully accounted for. However, accounting and accounting methods over the years have improved tremendously and Mr. Foulke rightly ascribes to the accountants and controllers a position of importance in the control and management of business today.

Practical Financial Statement Analysis is a valuable text book and should be most useful to colleges and universities having to do with business education. The author has conveniently subdivided the book into seven principal parts. In Part VII which I would discuss first, the author has given the philosophy behind financial statements and a summary of the more recent evolution in accounting principles and practices. The financial statement, according to the author, is based on recorded facts, so-called accounting conventions and personal judgment. How these factors affect the values at which items are recorded in balance sheets is explained.

Part I of the volume deals with the historical and credit background leading up to the analyses of financial statements and treats generally with the growing importance of Arabic figures in the business world. Part II deals with the analysis of a small business enterprise by the breakdown of sales income. To the 82 per cent of all active commercial and industrial concerns that have a tangible net worth of $35,000 or less, the author feels that this technique of financial interpretation, known as sales analysis, has wide application.

Part III defines and discusses ten important financial ratios. A ratio is defined as a figure or a percentage representing a comparison of one dollar amount with some other dollar amount as a base. With a sound knowledge of typical financial ratios, one may determine whether a particular dollar amount representing receivables, inventory, fixed assets, current liabilities, funded liabilities, or net sales is relatively large, typical, or relatively small. The theory behind each ratio is fully discussed in the light of our competitive business world and then illustrated comparatively.

Part IV describes in theory and practice, methods of comparative analysis. The author describes comparative balance sheet analysis as the study of the trend of the same items or computed items in two or more balance sheets of the same business enterprise on different dates. Comparative balance sheet analysis, he states, is most conclusive and comprehensive only when based on a thorough knowledge of internal ratios. In this process, the dates of successive balance sheets and a knowledge of the place of such dates in the natural business year of a particular line of business activity are significant.

In Part V, the income statement has been explained and the methods of analysis discussed. In the analysis of income statements, respective items of expense are set up as a proportion of net sales which represent 100 per cent. If one is familiar with what might be called normal proportions that particular items of expense should bear to net sales in a specific line of business activity, it becomes evident when a particular expense is excessive. The reader or student is furnished with a basic understanding of the "break-even point" and the relation between net sales, variable expenses and total expenses which is a great help in any analytical accounting work.

Part VI deals with analyses of surplus accounts. Here the difference between capital surplus and earned surplus is explained. It is important from the point of view of both accounting and accounting interpretation that the distinction in these terms be understood; also the proposed definitions of "retained earnings." The author discusses the accounting theory under which charges are made directly to surplus accounts instead of to the income account. The evolution in accounting theory and practice in recent years, notwithstanding the existence of considerable difference of opinion, has been toward making all charges to the income statement and none to surplus.

A slight criticism may be offered as to the vintage of some of the author's authoritative references. It seems to this reviewer that there have been a number of noteworthy contributions in the field of accountancy and financial management that should have been referred to in this latest edition. For example, *Changing Concepts of Business Income*, American Institute of Accountants, 1952; *Accounting Systems*, by J. Brooks Heckert and Harry D. Kerrigan, 2nd Ed. 1953; *Practical Controllership*, by David R. Anderson, 1947; *Shirt-sleeve Economics*, by William A. Paton, 1952, are some which come quickly to mind. All in all, however, this is a major contribution to accounting literature and will be of substantial assistance to business executives.

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Outline of Petroleum-Industry Accounting. Financial and Accounting Committee, American Petroleum Institute. (New York: American Petroleum Institute, 1954. Pp. 54. $3.00.)

A knowledge of the purposes for compiling the *Outline of Petroleum-Industry Accounting* is important be-because the scope is much narrower than that covered by the usual industry accounting manual. This outline omits the cost accounting and income tax aspects, but does an excellent job in discussing the "financial" accounting involved in this important industry.

The following excerpts from the Introduction visualize the possible uses of the outline:

"Individual petroleum companies may find this material useful for reference purposes. . . . In some cases in which the incidence of disagreement is likely to be greatest, the committee has included alternatives. . . .

"This compilation of accounting data may be useful for the training of new employees to acquaint them with the accounting practices followed generally in the industry. . . .

"Possibly the greatest usefulness of this work will be as a means of disseminating information regarding petroleum-industry accounting to the interested public. Libraries and educational institutions particularly may find it helpful in fulfilling their functions as sources of information and learning. The committee has visualized this work as a source of supplemental information to implement the accounting textbooks in use in colleges, not only in connection with specialized courses covering petroleum accounting, but in relation to courses in general accounting."

The chart of accounts is remarkably good. The code carries classifications for major and minor accounts analyzed by nine departments: producing, natural-gas processing and cycling, pipe-line, crude purchasing and storage, refining, tank-car, marine, marketing, and administrative. Because a single series of account numbers is used regardless of department, accounts common to all departments can be consolidated when necessary, except for the accounts covering property, plant and equipment. (The accounts for the pipe-line department are those prescribed by the Interstate Commerce Commission for common-carrier pipe lines.)

The book has five sections:

I. Chart of Accounts and Coding System
II. Explanatory Text—"General" Accounts
III. Description of Departmental Activity; Explanatory Text—"Departmental" Accounts; Explanatory Text—Functional Classifications.
IV. Alternative Methods of Accounting
V. Illustrative Pro-Forma Financial Statements.

The descriptions in Section III of the activities of the various departments will enable students to understand the accounts described. The illustrations of the last-in, first-out pricing procedure applied upon an annual basis and for interim periods in Section IV are well done. The monthly cost of sales under L.I.F.O. is computed on the end of the month basis by subtracting the final inventory from the total units available; the final inventory is priced out of the oldest units available. The other controversial subjects briefly discussed in Section IV are methods of costing petroleum products, oil exchanges, depreciation and depletion, idle equipment, and overhead distribution.

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Economics and Economic History

Capitalism and the Historians. F. A. Hayek, ed. (Chicago: University of Chicago Press, 1954. Pp. vii, 188. $3.00.)

This excellent but exasperating book suggests that historians have been engaged in what amounts to a plot. In a volume containing essays by an international collection of scholars—T. S. Ashton, L. M. Hacker, Bertrand de Jouvenal, W. H. Hutt, and F. A. Hayek—the interpretation of the British Industrial Revolution (c. 1750–1850) is evaluated, and the collaborators conclude that historians have shown in their writings a notable bias against capitalism. Professor Hayek tells

us that these historians of the Industrial Revolution have created "one supreme myth which more than any other has served to discredit the economic system to which we owe our present-day civilization. . . . It is the legend of the deterioration of the working classes in consequence of the rise of 'capitalism' (or of the 'manufacturing' or the 'industrial system')." Hayek concludes that "the widespread emotional aversion to 'capitalism' is closely connected with this belief that the undeniable growth of wealth which the competitive order has produced was purchased at the price of depressing the standard of life of the weakest elements of society" (pp. 9–10). The essays are concerned with three questions: What are the facts about the Industrial Revolution? How did the historians present them? Why did they present them the way they did?

The traditional dismal view, most brilliantly stated in the studies by J. L. and Barbara Hammond, holds that the growth of the factory system resulted in a fall in real income to workers because of the disruption of old occupations and the competition for new employment. At the same time, urban industrialism imposed grim new social problems—slums, long hours of work for women and children, and widespread social disorganization. It was only about 1850, when the difficult stage of capital accumulation had ended, and as labor organization, humanitarian protest, and state intervention made themselves felt against employers, that workers as a class began to obtain an appreciable improvement in their standard of life. This interpretation has come under increasing attack since about 1925. The revisionists, of whom Professor Ashton is the most distinguished living spokesman, argued with statistical data that the standard of life of workers on the average, while worsening during the Napoleonic Wars, probably improved during the period 1820–1850 when the traditionalists claimed that it was at its worst. Although the issues were sharply debated, the widening range of factual evidence has produced a growing consensus among scholars. In fact, the Hammonds in 1947 conceded that the real income of factory workers probably rose during the post-Napoleonic period. The two essays by Ashton and the essay by Hutt summarize with vigor and clarity the lines along which the traditional view has been criticized.

The essayists recognize that this dismal tale was not the creation of modern historians. It was advanced as an accurate description of the period by contemporaries as widely diverse politically as the Reverend Malthus, Benjamin Disraeli, John Stuart Mill, J. R. McCullough, and Marx and Engels. But even if many contemporaries accepted the hypothesis of increasing misery, why did so many historians of the last 100 years come to the same conclusion? Ashton states that these scholars misread the parliamentary investigations—focussed as they were on the evils of the period—as the whole picture. He also claims that they were bad economists and consequently neglected the independent achievements of the business community. They tended to associate all improvements with intervention by the state, ignoring the gains which stemmed from the growing productivity of the industrial system.

Hayek and Ashton contend that there was one additional circumstance at work inclining the scholars to their dismal view of the Industrial Revolution. Economic history became the preserve of scholars with a socialist bias, interested in showing the inherent tendency of different economic systems to succeed one another in time. This viewpoint, says Hayek, affected not only Marx, Sombart, and the Webbs, but also those—the German Historical School and the American Institutionalists—who accepted the historical approach because they rejected classical economics and its practical prescriptions.

Professor Hacker, discussing the anticapitalist bias of American historians, challenges the hypothesis that hostility to industrial capitalism emerges solely from a socialist orientation. He points out that in the United States there has been virtually no socialist influence on historical writing. The key to the bias has to be associated with the egalitarian and Populist traditions of American agriculture. This tradition, of which Charles Beard is the major spokesman, contends that the virtues of an egalitarian agrarian society were submerged in America by a class-ridden industrialism. These writers are in the tradition from which has stemmed the strong anti-monopoly, pro-small business, levelling politics in the United States. This school has been unable to understand the contributions of the business system as a creative force in our society. (Ironically, it is the economic policies of this group which would be, I suspect, most agreeable to Professor Hayek!)

Bertrand de Jouvenel also tends to disagree with the thesis that it is the socialist bias which has made the intellectual hostile to modern capitalism. The secular intellectual in the western world, he contends, has always been hostile to established power. By his very nature the intellectual accepts only one form of authority, the power of persuasion. To him persuasion is the only "good" form of authority. The intellectual is suspicious of any coercive authority whether it comes from the massing of capital in the hands of businessmen or from rough police power of the totalitarian society. The specific hostility to the business system, de Jouvenel contends, stems from the fact that while the intellectual is concerned to teach what is true and good, the world of business is concerned only with what can be sold, good or bad. Here the intellectual finds himself because of different standards in conflict with the values of the business community.

I have already stated that the essays by Ashton and Hutt elegantly summarize the revisionist position on the Industrial Revolution with its emphasis on the creativity of the new factory system. Ashton rightly tells the reader that many of the evils we have associated with the early factories were traditions taken over from the older agricultural and handicraft economy. The tenor of the essays should destroy any lingering illusions of an idyllic pre-industrial society. Many of the problems were the inevitable consequence of swift social change in a society unprepared to deal with them. But despite its provocative qualities, the volume will leave the lay reader with a false sense of proportion. Despite the now accepted evidence of rising real incomes for industrial

workers during this critical era, the writers provide only a limited perspective on the period. Groups of workers constituting a significant portion of the labor force—agricultural workers and handicrafters—suffered seriously. Their fate cannot be dismissed as cavalierly as Hayek does. Further, Ashton's work rests heavily on statistical evidence which is slim, and it ignores the widespread social disorder during the period. While it was an era of fantastic growth in total output, it was also a time in which flowed, as the Hammonds somewhere say, "the resentment of men convinced that there is something false and degrading in the arrangement of their world." This explains in part why the dismal "myth" persists. It is not completely a myth.

The writing of the history of a period is a complex and subtle affair. (How many different interpretations can we find of the meaning of the New Deal era?) There is no objectivity because in the welter of evidence the writing of history is a matter of selection. The view of a period is ultimately determined by the interests of the historian and the questions he puts to his material. Even Professor Ashton says (p. 159) that the conflicts of interpretation stemmed in part from the different evidence with which historians have been concerned. Where the Hammonds stressed disorganization and poverty, Professor Ashton now enables us to see vitality and growing wealth. But we must see them both.

What does all this suggest about the usefulness of history? We will continue as always to use historical interpretations each time we grapple with important social and political issues because we cannot avoid it. But this volume should warn us that the reconstruction of the past is difficult; the obtaining of a balanced portrayal is one of the most elusive of human efforts. Consequently, to the extent that we must use history to bolster our judgments of contemporary affairs, it is urgent that we exercise humility in its study.

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Biography of a Bank: The Story of Bank of America N.T. & S.A. Marquis James and Bessie R. James. (New York: Harper and Brothers, 1954. Pp. x, 566. $5.00.)

The task of building up the framework of business history, long overlooked by scholars, is receiving increased attention. We now have an imposing number of published chronicles of individual firms and biographies of business men, and the list is growing. But these studies of the elemental units in business organization are only a preliminary effort in the larger process of isolating the phenomena of business and recording the findings. From this initial step the literature of business history, if it is to achieve its full development, must be expanded to include general business histories which would put together the story of business men, business firms, and industries.

The fascinating story of the world's largest commercial bank, skillfully written by chroniclers Marquis and Bessie R. James, is an outstanding contribution to the list of histories of individual business units. It should attract the interest of a wide array of readers. Commercial bankers and other practitioners in finance will find in the *Biography of a Bank* a valuable object lesson: the alert banker does not wait behind his counter for loan situations; he goes out and drums up new businesses and industries for his community or trading area —which, in the long-run, means more business for his bank. For students of banking, the work is an excellent study of the administration of a state-wide branch banking system. And for all others, the history affords a vivid description of the indispensable role that bankers play in the development of their respective communities.

The history of the Bank of America is a story of plural themes. In part, it is a business biography of the late A. P. Giannini, the greatest innovator and most dynamic figure in modern American banking. It is impossible to separate the man from the corporate structure he created, for the bank is a concrete expression of the personality and philosophy of its founder. Giannini ruled the bank by force of character and without recourse to stock control or pretentious titles. In 1904 he opened the Bank of Italy (which in 1930 became the Bank of America National Trust and Savings Association) because other banks were neglecting the small borrower, and throughout the years the bank has remained what Giannini intended it to be—a bank for "the little fellow." Thus, in a very real sense, Giannini was the Bank of America. But the authors have been careful to omit from the history of the bank—and for this they should be commended—the personal life of the banker and his other business projects which did not affect the course of the bank's work or development.

The story of the Bank of America is also, in part, the story of the economic transformation of California; for the bank had more to do with this transformation than any other privately owned financial institution, and Giannini more than any other financier. The authors have woven into the history of the bank the story of the bank's efforts to stimulate more industrial development in California to counterbalance the agricultural economy, and to free the state from domination by eastern capitalists.

But the main theme of the history is the growth of the bank and the development of new services and financing arrangements for depositors and loan customers. Early in his banking experience, Giannini was impressed by the conduct of Canadian branch banks, and he came to feel that almost anywhere in California there was room for a bank that would serve its community as his bank was serving North Beach, San Francisco's Italian colony. In 1909, he was ready to demonstrate the worth of branch banking by covering California with offices of the Bank of Italy.

At the time, few bankers favored branch banking, and its advantages were hotly disputed. This attitude was reflected in the rulings of state and federal regulatory authorities and in legal restrictions designed to curb the expansion of multiple-office banking. But Giannini found, by legal means, ways around these obstructions. By 1927, the Bank of Italy had planted offices up and down California. The authors have done

an excellent job in describing the complicated structure of corporate affiliates used by Giannini to build up a statewide branch banking system.

When the battle for statewide banking was won, Giannini turned to the task of crossing state lines with his branch banking system. He conceived the idea of regional or transcontinental banks which would strengthen the commercial banking structure and service the banking needs of the country in much the same way as branch banking had served California. Giannini did not succeed in creating a transcontinental bank, but the story of his pursuit of the idea provides some of the most dramatic episodes in this history.

A. P. Giannini died in 1949. The Giannini dynasty came to an end three years later with the death of his son and successor, Lawrence Mario Giannini. The passing of the Gianninis raised some questions in the mind of the reviewer which were not considered by the authors of the history. Some of these are: Does the Bank of America have a management team which is trained to carry on the banking philosophy of A. P. Giannini? Will there be any major changes in the policies of the bank? Is the dream of regional or transcontinental banking still alive in the Bank of America, or has it died with the Gianninis? But aside from this oversight, the authors have written a thorough and candid history of the Bank of America.

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An International Comparison of National Products and the Purchasing Power of Currencies. Milton Gilbert and Irving B. Kravis. (Paris: Organization for European Economic Cooperation, 1954. Pp. 203. $3.00.)

In the literature about social accounting and social accounts an indefinite area exists about the validity of inter-country comparisons. Some major degree of indefiniteness will always characterize such comparisons. Problems arising from differences in computing national aggregates, questions about currency conversion, the degree of industrialization, differences in tastes, and a host of other factors, all lead to results requiring caution in the interpretation of comparative data. The study under review is a major addition to the technique and methodology of comparative studies of national aggregates.

In the introductory chapter the need for inter-country comparisons is stressed. If countries are to solve common economic problems in concert, reliable measures of economic magnitudes are necessary. In previous studies the "focus of interest in this field was either on the relative level of real wages and working-class consumption, on comparative costs of living, or on changes in the purchasing power parities of currencies." Now comparisons are needed of the relative level of national product and of its particular components for "analytical and policy questions." No comparable national product estimates exist. Alternative types of comparisons have been used. First, the components of gross national product are expressed "as percentages of the total or as indexes in time series." This alternative has a major limitation. It shows the relative percentages of resources devoted to a certain purpose for a group of countries, but it does not show, for example, the "comparative level of real investment among them."

A second method used converts national products of various countries into a common currency unit via prevailing exchange rates. The O.E.E.C. has made several of these calculations for restricted use in its annual reports. This alternative also has limitations. "It would be essential for the average relationship of the internal purchasing power of currencies to be the same as the exchange rates used to convert the national products to common currency units." Briefly, an equivalence should exist.

There are many reasons why the equivalence is not likely to exist: (a) " . . . even for goods and services which can be internationally traded, it would be necessary for a long-term equilibrium in exchange rates to exist"; (b) restrictions on trade prevent the proper relationship of internal prices and exchange rates; (c) even assuming that (a) and (b) above prevailed, "prices to domestic buyers would certainly differ widely because of differences in the margins added for indirect taxes . . . processing . . . " etc.; (d) finally, the problem would be magnified by the fact that the gross national product, in the main, is made up of goods and services which are not traded internationally and the relationship of their prices to exchange rates would be "a tenuous one."

With the development of more appropriate and detailed national statistics, the authors feel that a better analysis is feasible. They propose to secure "appropriate quantities, prices and values for as detailed a breakdown of the gross national product as is possible for any two countries to be compared, and then weighing the data for each country, with the weights of first one and then the other of them. This produces two indices of the real product relationship and of the internal purchasing power of the currencies." This technique has been suggested and used by others. The authors make a more comprehensive test. Comparisons are drawn between the United States on the one hand, and the United Kingdom, France, Germany and Italy on the other.

Obviously, the technique and the reliability of the results which it produces depends on the ability to secure data for the countries to be compared. Since only part of the data could be obtained from published sources, other avenues had to be found. Apparently funds were available to pursue this end. Chapters VII to XI, in the main, review various aspects of data gathering and their classification. Aside from the physical task of statistical compilation, the more formidable one of reducing the magnitudes to comparable quantities becomes necessary. It is at this basic level that the damage can be done. The qualitative and quantitative decisions necessary to achieve comparability are legion. As a case in point, one may turn to the comparison of rentals on housing between the United States and Italy (pp. 148–151). The discussion appeals to such elements as "average type" and "standard," and through such devices a common denominator is to be found.

Chapters II to V review the results of applying the technique and making the comparisons between the United States and other selected countries. It is here that the broad purpose of the study comes into focus, i.e., "to measure the relative economic ability of the five countries to meet the requirements of present day existence." Some of the results are interesting: (a) some countries do not seem in as bad a position as one is led to believe from studies based upon a different conceptual approach; (b) the apparently wide divergence in results produced by the different methods of comparison should act as a warning to those making international comparisons.

Chapter VI treats of the conceptual problems of the study. It is refreshing for its thorough statement of limitations, both theoretical and applied. The chapter alone is enough to recommend the book to any student of social accounting.

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General

Program Budgeting—Theory and Practice. Frederick C. Mosher. (Chicago: Public Administration Service, 1954. Pp. xiii, 258. $5.00.)

For the first time studies of public budgeting and military administration have been merged in an attempt to explain "program budgeting" as used by the Department of Defense. However, the real significance of this book is much greater than the area of the study because it analyzes the budget process and attempts to give a true understanding of the governmental budget as well as the organization and the administrative characteristics of a governmental department.

Major General W. O. Reader (U. S. Army, Retired), who was concerned with the Army's budget from August 15, 1946 to January 31, 1953, points out in one of the two *Forewords* that in reading the material he "... found no error or lacuna of importance" and that the "... conclusions drawn are well based and in nearly every case coincide with my own." These comments testify to the accuracy of presentation and understanding of the author, of the problems involved in the budgeting processes.

The author points out in the *Preface*, that the Department of Defense and its Department of the Army, while not typical governmental budgeting agencies, bring out in profile the problems involved in budgeting in all governmental agencies. Another reason the selection of this unit for study is significant is because of the experimental activity in the budgeting process in progress in the Department of Defense in the past few years. In many respects its budget procedures have developed faster and gone farther than those of most other governmental agencies.

The "performance budgets" recommendation of the Hoover Commission has had a far reaching effect. In 1949 Congress made performance-type budgets mandatory for the Department of Defense after it had previously ignored the budget presented in this form by the Navy Department. This book analyzes and appraises the problems involved in the development of this type of budget by the Department of the Army.

The organization of the book is excellent and the materials are clearly and logically presented. Chapters I through IV set forth the purposes and principles of budgeting and emphasize the importance of budgeting in the administration of institutions. The setting of the military budget and the current situation in budgeting is developed so that a serious study of budgeting in this setting can be undertaken. The background of military planning and budgeting is briefly discussed but the current framework for planning and programming as followed by the Department of Defense receives major attention. The performance-type budget as developed by the Department of the Army is discussed and illustrated and the obstacles inherent in this concept of budgeting are pointed out. These obstacles are primarily classificatory, organizational, programmatical, and temporal.

Chapter V sets forth the actual budget process and procedure. It develops the organizational structure used in preparation of the budget and explains the role of each segment of the organization in the development of the budget. It is pointed out that "the model budget process becomes a series of sequential movements up and down an organization. The upward flow is characterized by coordination, consolidation, and generalization; the downward one by interpretation and specification." Since military budget estimates must be made 15 to 30 months in advance of the period to which they apply, the budget estimating procedure is important. The author discusses "the coexistence of two methods of budget estimating which are quite different both conceptually and technically." These two types are (1) the field system and (2) the central factorial system. Both are carefully developed and illustrated. The chapter also explains the budgetary review process, which is one of the most important steps in budget development as is shown by the amount of time spent on review. The initial preparation of the estimates by the various installations of the Departments of the Army and Air Force customarily occupies one and two weeks, while the work of consolidating and reviewing proceeds at various levels by various bodies for a period of about fourteen months.

Chapter VI explains the management concept of military comptrollers and their potential importance to military budgeting. The author points out that the initiators of comptrollership in the Department of Defense derived their ideas from business rather than from other departments of government. He carefully develops the business and military backgrounds of comptrollers and shows the complete about face in the military approach from the organizational trends in other departments of government.

The conclusions and some proposals are set forth in

the last chapter, *Chapter VII*. The author concludes that in certain respects the budget process hinders rather than helps well balanced program decision-making. These hindrances are carefully set forth. He also points out that the budget processes have some fairly basic shortcomings in internal management and efficiency of the military department but that these shortcomings have not resulted exclusively either from present innovations or practices of the distant past. Economy and efficiency are discussed; the author points out that these concepts are relative, and are measured by different standards during different periods of time.

This book deserves careful study by accountants, students and practitioners of public administration as well as those of the general public interested in understanding the budgetary process and problems of our governmental institutions, regardless of whether they have any direct concern with the Department of Defense.

The proposals made are well considered and should be given attention by all students of budget methods, since the approach, analysis, conclusions and recommendations represent a fresh approach to the problem.

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Dictionary of Business and Industry. Robert J. Schwartz. (New York: B. C. Forbes and Sons Publishing Co., Inc., 1954. Pp. xlvi, 561. $7.95.)

This volume, the result of five years of research and investigation by the editor, a practicing attorney, is a diversified compendium of definitions for business and industry. As a preface there are 36 pages of well-arranged charts and tables, such as Weights of Building Materials, Revised Foreign Trade Definitions, Coins and Notes of the World and Interrelation of Units of Measurement. The weight in pounds per square foot of a plastered ceiling, what is meant by the term C.I.F., or the number of square feet in an acre are examples of data in this preface. Conversion Factors include horsepower to kilowatts, gallons to cubic feet or cubic inches, acre feet to gallons, etc.

The heart of the volume is a listing of 45,000 business terms, most of which are not found in the smaller dictionaries commonly used in industry. Trade names, trade terms and legal terms are included and carefully defined. Over 1100 trade associations contributed well over 125,000 terms. Duplications and general terms in normal usage were eliminated leaving a live, clear, concise and useful idiom of business.

An examination of a few common words quickly shows the necessity for a business and trade reference. The first definition listed for *skin* is "a thin molded piece of plywood or thin hardwood covering placed over the mold to give greater durability"; for *size* is "a solution of blue or starch applied to yarn or fabric to stiffen and strengthen it"; and for *box* is "isolated part of advertisement of printed page, enclosed in rules or a border and often set in a different type face or weight." A *dog* is "a name for various mechanical devices, tools, etc., that usually grip something; the grappling iron which lifts the monkey, or hammer of a pile driver"; and *dog guard* means "the sleeve that is frequently swaged and shrunk about an electric line pole, for a short distance above and below the ground line in order to prevent corrosion of the pole at ground line." These are not the mental pictures most of us would form from these words, emphasizing the fact that we have in America a large vocabulary peculiar to given industries and not readily understood by the uninitiated.

In checking terms for the industry of your reviewer, lumber and logging, there are several missing: *donkey*, *setter*, *shotgun*, and *knees*. However, definitions are listed for *hog*, *cat*, *choker*, and *resaw* among others. These items are correctly defined. No doubt omissions will be reported by various trade groups, and it may be desirable some time in the future to publish a later edition.

Editor Schwartz has produced a tool that will be of great benefit to any person who has occasion to need the common translation of a business term or abbreviation. This volume will not be relegated to the library or book case. It will remain on the businessman's or secretary's desk for ready reference.

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Taxation

The Uneasy Case for Progressive Taxation. Walter J. Blum and Harry Kalven, Jr. (Chicago: The University of Chicago Press, 1953. Pp. viii, 104. $2.50.)

In 104 pages, the authors discuss, cite and thoroughly survey most of the significant literature on the question of progressive income taxation. Since the avowed purpose of the book is to attack the theory of progression, the authors unsparingly take advantage of every weakness in each argument. Like many other writers on the subject, they criticize the theory of progressive taxation but utterly fail in their effort to support the idea of a proportionate tax, which they urge as more sound and more equitable method.

The essay is well written and logically arranged. First, the stage is set by posing the question. This is followed by the political and legal development of the subject. The next step is the development of several negative arguments. Among them are:

1. that progression creates a highly complex administrative problem,
2. that it leads to political irresponsibility,
3. that it is a deterrent to economic incentives.

After the above arguments are thoroughly aired, the authors then make this statement:

"If a strong case for progression can be made out affirmatively, these objections would not stand in the way. But if the doubts about the affirmative case for progression increase, these objections would take on greater weight."

This statement sets the stage for the remainder of the book. Each of the many arguments usually proposed for a progressive tax system is mentioned, dissected and its weaknesses pointed out.

Among the arguments discussed are:

1. progression assists in creating and maintaining a high level of business activity, as well as a degree of economic stability,
2. that a progressive tax is levied on the benefit received theory,
3. the equal sacrifice theory based on the declining utility of money,
4. that progression minimizes the total sacrifice of all taxpayers, and
5. the ability to pay theory, based on the idea of sacrifice and on differences of consumer expenditures at different levels of income.

The next step in the argument against progression is discussed in several chapters designed to overcome the thought that a progressive tax contributes to the elimination of inequalities in economic status. In developing this phase of the material the authors look to economics, ethics and the broad fields of social and political implications. Finally, the attack centers on the subject of exemptions and its connection with the theory of progression.

It is interesting to note that the authors mention that the one thought that underlies every argument for progressive taxation is that such a method tends to result in a more equitable distribution of the total tax burden. This is partially based on the argument that "by and large a tax on income is a burden on the taxpayers who are charged with the income and that it is not shifted by them to others." They further recognize that this is the case by stating that "in this essay it is assumed that the burden of a tax on the incomes of persons is not shifted." In spite of this stand, taken early in the treatise, little or no effort is made to prove that any other means of taxation would result in fixing the real incidence of the tax on those where the law places the burden.

In the concluding chapter of the book, the authors say: "The case for progression, after a long critical look, thus turns out to be stubborn but uneasy. The most distinctive and technical arguments advanced in its behalf are the weakest."

In the last sentence, they conclude by stating that: "Ultimately a serious interest in progression stems from the fact that a progressive tax is perhaps the cardinal instance of the democratic community struggling with its hardest problem."

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Guidebook to Federal Estate and Gift Taxes. Third Edition—1954. (Chicago: Commerce Clearing House, Inc., 1954. Pp. 145. $2.00.)

This book should prove to be very useful in the preparation of Federal estate and gift tax returns. It contains the following completely filled-in return forms:

Form 704—Preliminary Notice
Form 706—Estate Tax Return
Form 709—Gift Tax Return
Form 710—Donee's or Trustee's Information Return of Gifts.

The "official" instructions on each form are reproduced in this book and each section is followed by CCH explanations that, in many instances, clearly demonstrate the difficulties which might be encountered in preparing a proper return without additional explanations not contained in the official instructions. For example, the official instructions require the inclusion in the estate of a decedent of certain transfers "in contemplation of death" without defining what is meant by that term. The CCH explanation devotes more than ten times as much space to this subject as the official instructions, and reviews the history and progress of this definition through the various courts. The analysis gives important suggestions in resolving this matter.

The same careful analysis has been made with respect to the troublesome tax treatment of the following transfers during the decedent's life:

Transfers intended to take effect at death
Transfers with possession or enjoyment retained
Transfers with right retained to designate who shall possess or enjoy
Transfers with power to change the enjoyment
Power relinquished in contemplation of death.

Because the marital deduction is comparatively new in estate tax law and very few court decisions or rulings have been issued interpreting this portion of the statute, the publisher refers to the legislative committee reports to obtain the intent of Congress in enacting the provision for the marital deduction.

Each section of the book is referenced into the applicable section of the Internal Revenue Code and the regulations for a more thorough analysis of each problem. The text of the book is derived substantially from the "explanation" sections of the CCH Federal Estate and Gift Tax Reporter loose leaf service, and the tax practitioner who has used CCH services will readily realize the editorial advantage of those sections. Some parts of the book contain excerpts from the CCH Federal Tax Course which is noted for its clarity and brevity.

The publisher states that the aim of this practical book is to simplify the task of determining what transfers should be reported on estate and gift tax returns, how to report them, and how to compute the ultimate tax. The user of this book will find that aim well accomplished. This book should also prove helpful in estate planning, particularly when considering the possibility that lifetime transfers might be included in the estate upon death. Everyone concerned with estate or gift tax matters will find material of interest in this publication.

W. C. HOPKINS
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Teaching Accounting

Accounting Teacher's Guide. American Accounting Association. (Cincinnati: South-Western Publishing Company, 1953. Pp. xiii, 258. $2.50.)

Purpose

The editors of this *Guide* state that it is an attempt to help fulfill the Association's objective " . . . to improve methods of instruction in accounting and to demonstrate the social benefits of a more widespread knowledge of accounting . . . ," with the inexperienced teacher of accounting subjects in mind. This reviewer assumed that the inexperienced teacher of accounting subjects would be one who has earned a master's degree, a doctor's degree, or is a C.P.A., but who would not have had an apprenticeship period in secondary schools or teacher-education courses. On the basis of this assumption, the inexperienced instructor probably will find the *Guide* useful as an orientation and introduction to his responsibilities as a collegiate teacher of accounting subjects.

Organization and Contents

The foreword states that over 100 persons made substantial contributions to the book. Eight section editors assisted the three members of the editorial committee combine the numerous contributions into the eight chapters. The large number of authors gives the book a "yearbook" quality—the same topics being dealt with in different chapters of the book.

The first chapter presents a survey of the relationship between being a teacher and practitioner of accounting—the general recommendation throughout the *Guide* is that the collegiate teacher must be both. The bulk of the material in the first chapter describes accounting practice as a career and paints a much brighter financial picture for the practitioner than for the teacher. Much of the material about the work of an accountant in this chapter is probably a review of what the new instructor already knows. The material about the teacher of accounting may be new to the neophyte.

Beginning with Chapter II and continuing for the next seven chapters, the editors and contributors have attempted to present information relative to such things as determining course content, teaching techniques, guiding the student, and evaluating the work of the teacher. In these seven chapters the inexperienced instructor is introduced to just about every problem or responsibility with which he will be concerned as a collegiate teacher of accounting subjects. Much of the material in these chapters only hits the high points.

A particularly good treatment is given to planning and organizing the elementary accounting course (which most new, young and inexperienced instructors receive as their initial assignment); to testing, with all the problems of constructing, administering, and grading; and to self-evaluation through student-opinions and questionnaires.

General Comments

Although several different teaching methods or devices are referred to, such as class discussion, study guides, and laboratories, the lecture is given the most complete treatment. Even the sub-section "class discussion" becomes most specific when outlining ten recommendations for making effective use of the lecture method. The sub-section "presentation techniques" makes a one-sentence reference to such techniques as lecture, group discussion, and blackboard demonstration. Seven generalities about classroom presentation are introduced then with a reference to oral presentation (lecture?) and no other specific type of presentation is referred to thereafter in the sub-section. The sub-section on "motivation" also deals at length with the lecture. Included is a discussion of the weaknesses of the lecture method. This sub-section and others repeatedly warn the inexperienced instructor, however, not to limit his presentation methods to that of the lecture. The alert and "motivated" teacher may heed these warnings and investigate more fully the other techniques that he may want to use.

A service could have been performed if a single sub-section or even a chapter had been included giving more details about how to decide what method is best, how to plan in detail for each method, and the advantages and disadvantages of each method. The *Guide* presents some of this information, but in various sub-sections and under a variety of sub-headings.

The chapter on "the teacher's self-audit" begins with an enumeration of the fundamental qualities of a good teacher. Omitted from this discussion is an item that might well have been high-lighted as also basic to selecting the most productive teaching technique or device for any particular topic: an understanding of how people learn. Throughout the *Guide* this is inferred through statements which constitute psychological principles of learning. Seldom are these principles brought into prominence to indicate they are of major importance.

In the sub-section "principles of learning" three principles are listed:

1. Motivation (defined as creating the desire to learn).
2. Understanding (defined as student recognition of the purpose and meaning of the class activities and materials).
3. Practice (defined as the activity planned for the student to aid him develop proficiency and retention of skills and knowledges).

Many students of educational psychology might take issue with the statement of principles of learning in one word. The explanatory material, however, helps to build an understanding of these words as applied to learning. Other statements of principles of learning are given in various places in the *Guide*. The statement is made on page 50 that "if the student is to learn, he must first want to learn." This is a development of the word *motivation* as previously defined.

The "principle" of *understanding* is developed without direct reference to it in various places, such as on page 43 where the statement is made that "meaning and purpose provide the proper perspective for the learning procedure."

Practice is referred to, indirectly, in such ways as on page 54 where a warning is given against the instructor doing too much of the work himself, on page 63 where an explanation of "spaced learning" states that "... within limits frequent short meetings are more effective than fewer but longer meetings...," and on page 93 where the advice is given that "... accounting is something that can best be taught by doing it." This latter statement probably should have read that accounting is something that can best be *learned* by doing it.

This reviewer believes that good teaching must be based on two things (as a minimum): a mastery of that which is to be taught, and an understanding of how people learn. A mastery of teaching techniques and devices is not productive if their effect upon the learning process is not fully understood. The *Guide* does adequate justice to defending the need for mastery of the subject of accounting, but does not place very much emphasis upon understanding the "laws" of learning.

Conclusions

This reviewer was asked "... whether you think our committee did a good job or were talking about something that should have been left to people in your line." This is not an either-or proposition. The sections describing the place of accounting in the business world and in collegiate education, the emphasis on content for various accounting courses, the problems of an inexperienced accounting instructor in a college or university were topics needing the experience and understanding of "subject-matter specialists." The general prestige of the *Guide* will be enhanced because it was written by "subject-matter specialists." All else to the contrary, however, both "subject-matter specialists" and "teaching specialists" are involved in the preparation of teachers for the collegiate level. The *Guide* probably would not have suffered and might have been improved upon if the two groups had collaborated.

A required supplement to this *Guide* must be the advice and guidance which can come only on a personal basis from experienced instructors with whom the inexperienced teacher will work during his first years of teaching. The *Guide* is not THE answer to the problem; it may serve as part of the answer.

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